



BOROUGH OF MIDDLESBROUGH PLAN

The headpiece shows the large model of the centre of Middlesbrough illustrating part of the Middlesbrough plan prepared by a team of architects directed by Mr. Max Lock [4].

A north-south boulevard is proposed, connecting the station with the central park, running between the shopping and business centres and giving emphasis to the civic buildings. Three east-west roadways follow the natural division between the town's industrial, business and residential areas.

New housing estates are planned, their neighbourhood characteristics maintained and encouraged by the provision of community, health and educational centres. Shops are provided in proportion to the population and houses vary in size.

The implementation of the plan is set forth in programmes covering 5, 15 and 30 years in which private as well as public enterprise is needed. It is thought that the cost will not greatly exceed the amount spent during the past 30 years when the town, while doubling its size, achieved no substantial improvements.

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Journal

RELEASE FROM H.M. FORCES

The following statement sets out the conditions relating to release, other than under Class A, from H.M. Forces, and has been issued by the Ministry of Labour and National Service. Members, particularly those in private practice, are asked to study the conditions with care as they represent the position as it stands to-day.

RELEASE OF INDIVIDUAL SPECIALISTS UNDER THE CLASS B ARRANGEMENTS AND RELEASE ON COMPASSIONATE GROUNDS AFTER THE DEFEAT OF GERMANY

I. INDIVIDUAL SPECIALISTS

1. General Conditions

(a) The sole criterion for release must be the national interest.

(b) The numbers released in advance of their release group must be kept to the absolute minimum.

(c) Release out of turn will not be allowed if there are other means of meeting the situation.

(d) The man concerned will not be released if he is unwilling.

2. Rules to be applied in each case

(a) The man must be required for work that is vital in the national interest.

(b) The post for which the man is required must be a key post.

(c) The man must possess the experience, knowledge, training or special qualifications necessary for the post.

(d) It must be proved that it would be against the national interest to wait for the man to be released in his normal turn.

(e) It must be proved that the post could not be filled from

C

available civilian sources and that no alternative arrangements could reasonably be made for the performance of the work.

(f) A man will not be eligible for release to take up a post in which a civilian of his age would not be eligible for deferment under current deferment rules.

3. Method of Application

The undertaking desiring the man's release must apply to the Government Department principally concerned with their activities. This is the only channel of approach and application should not be made direct to the Service Departments or the Ministry of Labour and National Service.

Application from the man himself (unless he is his own employer) cannot be entertained.

II. COMPASSIONATE RELEASES

4. Rules

The following are the principal conditions which have to be fulfilled to secure compassionate release :—

(a) Release on compassionate grounds, except in cases of exceptional hardship, is for a temporary period only and may be granted for two reasons :—

- (i) domestic distress,
- (ii) business interests.

(b) To receive favourable consideration the application must be based on hardship to the man himself or his family and in addition the applicant, in appropriate circumstances, will be required to prove beyond reasonable doubt ;

Domestic Distress

(i) the genuineness of his claim (by medical or other evidence) ;

(ii) that there is no other suitable person who is capable of assisting or of making alternative arrangements ;

Business Interests

(iii) that he is personally and financially interested in the business ;

(iv) the business is in danger of being lost ;

(v) there is no other suitable person who is capable of running the business or of making alternative arrangements for it to be carried on.

5. Method of Application

As compassionate release is a matter entirely within the discretion of the Service Department concerned, the man himself, or the interested party on his behalf, should address the application to the man's commanding officer. This is the only authorised channel of approach.

MANCHESTER PLANNING EXHIBITION

R.I.B.A. CONFERENCE PROGRAMME

An Architects' Conference is to be held at Manchester in connection with the Exhibition of the Manchester Plan. It is being held in the Manchester Art Gallery, Morley Street, on Thursday, 6 September, and Friday, 7 September. The Conference chairman is J. S. Beaumont, M.C., B.A. [F.], President of the Manchester Society of Architects.

PROGRAMME

THURSDAY, 6 SEPTEMBER, 2.30 p.m. Lord Mayor of Manchester to open the Conference. Speaker : W. H. Ansell, M.C., Past-President R.I.B.A., on "The Architect's Part in Town and Country Planning," 4.30 p.m. Tea and inspection of the Exhibition. 8 for 8.30 p.m. : Informal Reception by the Lord Mayor of Manchester in the Town Hall.

FRIDAY, 7 SEPTEMBER, 11 a.m. Speaker : R. Nicholas, B.Sc., M.I.C.E., M.T.P.I., City Surveyor, Manchester, on "The City of Manchester Plan." 2.30 p.m. Speaker : L. H. Keay, O.B.E., Vice-President R.I.B.A., City Architect and Director of Housing, Liverpool, on "The Amenities of Living—the House and Neighbourhood."

Architects wishing to attend the Conference should notify H. T. Seward [F.], Hon. Secretary, the Manchester Society of Architects, 16 Princess Street, Manchester, 1. Visitors to Manchester must themselves arrange hotel accommodation and are advised to do so early.

MEMBERS SERVING WITH THE FORCES

KILLED

BOWLEY, B. B. [L.], Capt. S.R.I.C.C.
HALLIDAY, J. L. [A.], F/Officer R.A.F.
HILLMAN, W. [S.], Capt. R.N.F.
LAWTON, K. W. [S.], Grn/Svr. R.A.
WALKER, J. B. [S.], F/Sgt. R.A.F.
WHITE, E. R. [S.], F/Officer R.A.F.
WOODCOCK, W. R. [S.], F/Officer R.A.F.

MISSING

HUGHES, A. M. B. [S.], P/Officer R.A.F.
MACPHEE, I. M. [S.], W/O. R.A.F.

REPATRIATED PRISONERS OF WAR

MANSER, J. W. M. [A.], Capt. Queen's Regt.
PARSONS, A. L. [S.], F/Lieut. R.A.F.
STANSFIELD, J. C. O. [S.], Lieut. West Yorks Regt.
TWIST, K. C. [S.], L/Cpl. R.E.
WITHAM, W. J. [A.], L/Cpl. R.A.C.

DECORATIONS AND DISTINCTIONS

BATEMAN, R. W., M.C., C.de.G. [F.], Major Pioneer Corps. Awarded M.B.E.
DREWITT, G. B. [A.], Major Devon Regt. Awarded Croix de Guerre with Star. Mentioned in Despatches.
EGLIN, H. J. [A.], Cpl. R.A.F. Mentioned in Despatches.
FARDELL, G. C. [A.], Major R.E. Awarded M.B.E.
HAGGAR, A. A. [A.], Major R.E. Awarded M.B.E.
HAMMOND, L. H. [A.], Sgt. R.A.F. Mentioned in Despatches.
HAMMOND, P. D. [S.], Capt. R.E. Awarded M.B.E.
HORWOOD, R. F. [A.], Capt. R.C.E. Mentioned in Despatches.
HURST, S. C. [L.], Major. Mentioned in Despatches.
KNIGHTON, P. H. [A.], Major R.E. Awarded M.B.E.
LAIRD, M. S. [S.], Major R.E. Awarded M.B.E.
LASDUN, D. L. [L.], Major R.E. Awarded M.B.E.
LEGGATT, R. W. [A.], Capt. R.E. Awarded M.C.
MATHEWS, E. D. J. [A.], Lieut.-Col. R.E. Awarded O.B.E.
PARKER, W. N. [A.], Major R.E. Awarded M.B.E.
PITE, R. W. [F.], Sqdn. Ldr. R.A.F. Mentioned in Despatches.
PLAYNE, E. [A.], Lieut./Commander R.N.V.R. Awarded D.S.C.
PRICE, E. J. [S.], Capt. R.A. Mentioned in Despatches.
STURGEON, J. H. [A.], Major R.E. Awarded M.B.E.
THOMAS, N. P. [A.], Major R.A. Awarded M.B.E.
WYLIE, A. B. [A.], Major R.E. Awarded M.B.E.

R.I.B.A. INTERMEDIATE EXAMINATION, MAY 1945

The R.I.B.A. Intermediate Examination was held in London, Manchester, Leeds and Belfast from 25 to 31 May 1945.

Of the 147 candidates examined, 57 passed and 90 were relegated. The successful candidates are as follows :—

Ainsworth, Edward N.
Bateman, John F. ; Bellairs, Edwin ; Bennis, David ; Bolton, John J. ; Bosanquet, Peter H. ; Boucher, Paul W. ; Bowles, Geoffrey E. ; Bright, Dennis W. ; Browning, Eric C. ; Burdis, John F. C. ; Carter, John B. ; Chapman, Maurice A. ; Cox, Gilbert H. ; Currie, Betty (Miss) ; Crux, Michael R. (subject to approval of remaining Testimonies of Study).
Day, John B. ; Driver, Margaret E. P. (Miss) ; Durrant, Sidney J. East, Barrymore W. ; Evans, John H. ; Fitch, Alan ; Fletcher, Dorothy M. (Miss) ; Ford, Frederick E. ; Goodridge, Sydney P. ; Guard, Wilson P. ; Hampton, Peter ; Hill, John G. ; Kench, A. Joseph ; Kirby, Anthony J. G. ; Lavender, Mavis E. (Miss) ; Lock, June (Miss) ; Lovejoy, Derek A. W. ; Maples, Mary C. (Miss) ; Martin, Beryl A. (Miss) ; Mellor, Alexander J. ; Morgan, Robert S. ; Mullins, William F. ; Nellist, Arthur I. ; Paine, Charles N. ; Park, John B. ; Parrish, Horace ; Phillips, Roland O. ; Preston, Alan M. ; Prichard, Victor H. S. ; Roscoe-Hudson, Alan. ; Scott-Williams, Gerard ; Strubbe, John A. T. ; Tanner, John W. ; Taylor, Ivor A. T. ; Thompson, Eunice (Miss) ; Thornley, Roy D. ; Tischler, Franz ; Turner, Clifford W. ; Vivian, John V. J. ; Wickens, Dennis G. ; Zargel, Albert.

The following candidates have also completed their qualifications and have now passed the Intermediate Examination :—
Adams, George R. ; Pitts, James N.

METHODS OF CONSTRUCTION AND OF HEAT INSULATION IN THE UKRAINE

EXTRACTS FROM "DWELLINGS OF THE PEOPLE IN THE UKRAINE" *

By P. G. YURCHENKO

Translated By G. N. GIBSON

INTRODUCTORY NOTE

These Russian studies, very well translated by Miss Gibson, are interesting from many points of view. The extreme case of any set of conditions is always instructive, and we find in the traditional house of the Ukraine a whole technique of heat insulation. An example is the "prisba," or projecting plinth made of retained earth round the walls. The reason is that rubble footings alone will not prevent freezing of the wall and the adjacent ground flooring. One might note that in Russia water mains have to be 6 ft. or more below ground level, or must be banked with snow in winter. Also Russian "Building Standards" draw attention to the fact that the freezing depth of soils depends on the water-content of the soil as well as on the air temperature. In this connection, the dry paving of the marginal ground round the Ukrainian farm has value. It is not very well recognised in this country that an old house without a damp-proof course can be kept drier and warmer by marginal paving properly drained. Again, good building science is shown in the Ukrainian straw and earth sandwich walling. Straw makes a good insulating fabric; it has been used in this country and could be used again. Note also the earth insulation to ceilings under roofs. A common fault in the design of modern shack housing in this country is to forget the ground floor and roof insulation, with consequent condensation troubles. An interesting "heating" point is the function of the stove. It heats continuously, not intermittently, a fact related

to the high heat capacity of earth walling and of the soil beneath. In this country we are familiar with the notion of heat loss, but less so with the notion of heat capacity. In Russia, owing to prolonged frost action, the time interval between minimum seasonal temperature of air and soil is considerable. This means that far into the thaw the earth, under fields and houses, is a refrigerator, and water pipes, for instance, will lose heat to the soil and freeze, while a warm early summer sun is shining. Similarly, a house, unless adequately insulated, is in contact with the earth, a body of almost infinite heat capacity. But if insulation is efficient, the earth walls and "prisba" will store up heat from the stove slowly, and can then be maintained economically. Readers of Russian literature will recall the stove and its astonishingly varied role. It has a mythology. To us the notion of the earth as an ice-age monster sleeping under the house, and able to chill from the foundations up, is a strange one—until we get a severe winter and the house supply pipe freezes. But from it we can see that the stove is parental to the Russian home, which has winter light (owing to the snow), but has continuous cold. Then looking back at our own island as through a telescope, we can see ourselves—children of the Gulf Stream—deprived of light, but with intermittent and less severe cold, and realise our need for low heat capacity linings easily warmed up when temperature alterations require it.

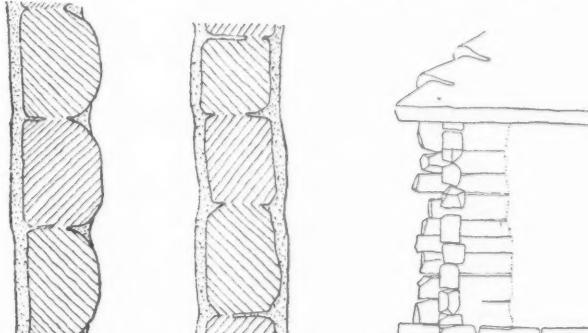
H. Bagenal.

The architecture of the people in country districts employs local structural materials exclusively and in that respect is an instructive example of the variety of uses to which clay, wood, straw, reeds and other local structural resources can be put. In the recent past, in the construction even of the more complicated village buildings it was customary to dispense with imported materials, with the exception of glass. Frequently, even iron nails were replaced by wooden pins, straw and osier. At the same time, the method of construction was distinguished by extreme simplicity. The architect of the people had at disposal very restricted means for the solution of structural problems, and he had, therefore, to show great inventiveness and a knowledge of every type of material.

In the Ukraine it has for long been customary to build two types of dwelling, namely, log huts and earth huts. It would be difficult to say which of these methods is to be considered the more typical of Ukrainian vernacular architecture. Both existed in olden times and both are equally characteristic of different parts of the Ukraine. The architect of the people uses wood in preference to other materials because of its comparative lightness and low thermal conductivity. Communities who live on the edge of a forest always build in wood only; but in the conditions of the steppes the only suitable substitute for wood is earth alone, or earth combined with straw and wood. Thanks

to the existence of clearly marked forest and steppe zones in the Ukraine, the two methods of construction are equally widely used there.

At a comparatively late date, the architects of the Ukraine



43. Wall of logs with clay filling and coating (Polessie forest district and Chernigov district).
 44. Logs with clay coating (districts of Kiev, Poltova, Podolia), used in forest steppe regions.
 45. Corner construction.

* P. G. Yurchenko: *Narodnoe Zilische Ukraine gosudarstvennoye*. Arkhitekturnoye Izdatelstvo Akademii Arkhitektury. 4to. 87 pp. + 3 coloured pls. + 1 folded pl. Moscow. 1944.

began to introduce widely a more complicated type of construction, namely, framed houses. This type was resorted to owing, chiefly, to the need for economising wood.

The log walls of the Ukraine have their own characteristic features. The predominance of deciduous timber influences the character of the wood-walled hut. While in countries with an abundance of coniferous timber the logs forming the walls are almost all of the same cross-section, in the Ukraine the dimensions of the wall members vary, as they consist of logs hewn or split from the thick uneven stems of oak, hornbeam, alder, lime, etc. Hence, in Russian vernacular architecture the log is, as it were, the module of the building, but in the architecture of the Ukraine the character of the log house disappears from the plane surface of the wall and appears only at the angles.

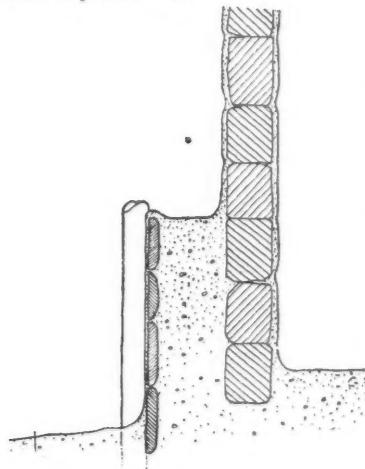
The second distinctive feature of the log house in the Ukraine is the thin clay coating applied to the walls. The need for such a coating originates evidently from considerations of protection from draughts through chinks between the logs, of protection of the exterior from atmospheric influences, and fire; and also from the purely aesthetic motive of giving the wall a smooth surface, since the clay hides all the unevenness of the wooden surface. The coated wooden wall has a similar external appearance to a clay wall.

Three types of log house may be mentioned which are typical of the different forest and forest-steppe regions of the Ukraine.

In the forest region (Polessie) they make the huts of roughly-squared full beams, or beams sawn in two, and in both cases coat the walls inside and outside with clay. The most northerly districts are an exception; there they use clay simply to fill the chinks between the logs and the latter are left in their natural state or are whitewashed (Fig. 43).

In the forest-steppe region they build the wooden walls of squared beams, 12 to 18 cms. deep, and 20 to 25 cms. high, and apply the clay coating to both sides (Fig. 44).

The third type, departing from the usual practice, and found sometimes in certain parts of the Carpathians, is a structure of neat squared beams of oak, alder or lime of the same dimensions, for example, as the preceding type. In this case the interior wall surfaces of the living quarters are finished off with particular care. The beams are fitted very accurately and the inside wall surface is not coated with clay. Such walls are easily kept clean with soap and water.



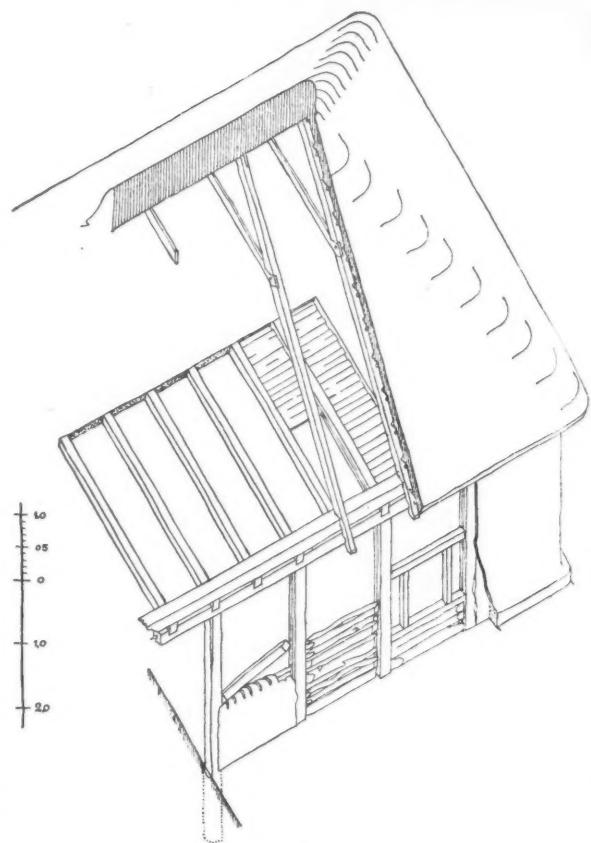
48. Construction of a projecting plinth or "prisba" (Poltava).

technique of construction of walls of buildings other than domestic.

Foundations in the customary sense, with footings deep in the ground below the freezing line, are not usually made in wooden

It should be pointed out that the selection of the wood is determined by its position in the wall. The beams up to the window board are exposed to damp; for these they use oak or other hard wood, while the upper part of the wall is constructed of softer wood.

In all cases the angles of the cottage are constructed of half-logs with a greater or lesser projecting length (see Fig. 45). Only in the forest region (Polessie) does one find the projecting logs at the angles cut to a dove-tail. This method in the architecture of wooden buildings of the Ukraine is most often applied in the



50. Frame construction of a peasant's cottage (village in Kiev district).

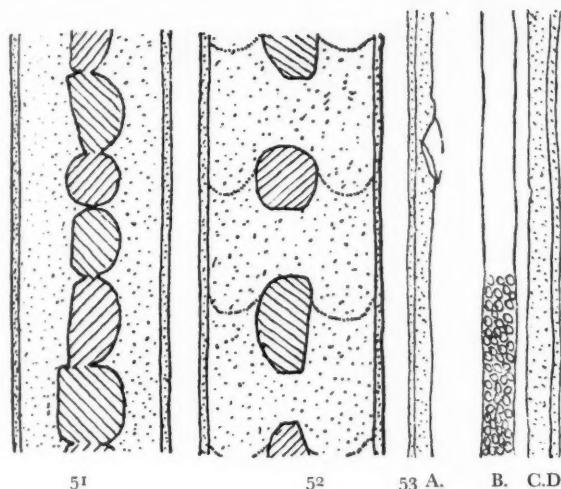
buildings of the Ukraine. The first logs are laid on blocks of wood, tree stumps or large stones placed at a slight depth in the ground to increase stability. They are sometimes even placed simply on a bedding consisting of a single layer of stones laid on the site when it has been made level. A compact foundation of stones under the house is rarely used. With foundations constructed in this way, there is danger of freezing of the wall and of the part of the floor near the wall. For the sake of warmth, the lower part of the wall is increased in thickness as shown in Fig. 48, i.e. by a projecting plinth (or "prisba"). The plinth is made of earth rammed between the wall of the hut and a low fence of planks or brushwood parallel to the wall. The plinth as well as the wall of the house are coated with clay.

The scarcity of wood, especially in the steppes, has for long made it necessary for the village architect to seek more national and economic methods in the use of woods. Such a method is to construct the hut as a frame with wall panels of other materials. This method of construction has been adopted very extensively in the Ukraine.

Wooden posts are set in holes in the ground 1 m. to 1.5 m. apart and at the top they support a frame formed of 2 to 4 beams (Fig. 50). The space between the posts is filled with spare timbers, the ends of which fit into grooves made in the posts or formed by two battens nailed to the posts. A batten is nailed to the timber panel or it is notched with an axe or a short wooden wedge is driven in. After having been prepared in this way, the wall is coated with a layer of earth well mixed with straw (Fig. 51). This method of "filling" between the posts requires, however, a comparatively large quantity of wood, and, in

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VERTICAL SECTIONS.

51. Timber, clay and straw (Kiev district).
 52. Timber, clay and straw (Podolia, Western Ukraine).
 53. Timber with reed insulation (Poltava district).

A. Timber frame. B. Reed. C. Clay with straw. D. Mud.

of clay mixed with plenty of straw. On this another log of wood is laid and hammered down with a mallet as far as it will go into the clods beneath. Alternating layers of wood and clay are obtained in this way and the quantity of wood is reduced to half. A neat, thin clay layer applied to the external surfaces binds satisfactorily with the clay wall panel and does not become detached (Fig. 52).

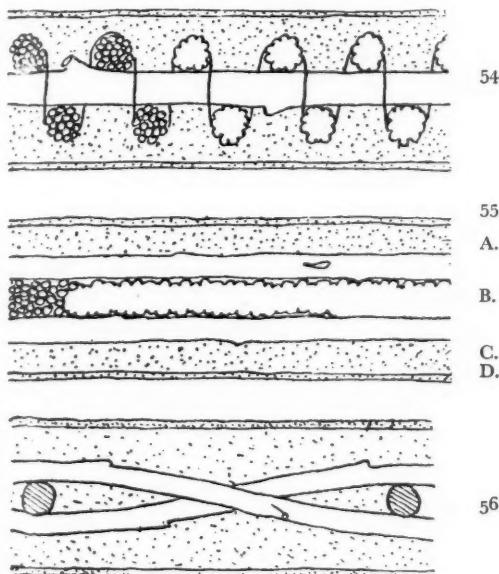
In regions where reeds are plentiful a somewhat different solution is reached for the filling of the frame. The wood used for the panel is of small section, i.e. about 3 to 4 inches in diameter. For heat insulation of the wall a vertical layer of reeds, about 2 inches thick, is placed against the wood at the outer wall surface and pressed against it by thin laths; the clay covering is applied to the reeds (Fig. 53).

Most often, however, in those regions, the walling between the posts is constructed entirely of clay. Between the posts three holes about 2 inches in section are placed horizontally in prepared openings; to these, bundles of reeds are secured with cord in a vertical position and with a staggered arrangement. Clay mixed with chopped straw is pressed into the gaps between the bundles of reeds on both sides and the wall surface is then smoothly finished with a coating of clay (Fig. 54).

Comparatively rarely the space between the posts of the frame is filled with reeds placed vertically and compressed between two poles, and this is coated on both sides with a layer of clay (Fig. 55).

The types of wall construction which have been considered are those of the heated living accommodation: the walls of the unheated part, however, in most cases are without a clay coating. The walls in such cases, whether the hut be of the frame type or not, are for reasons of economy left exposed. Sometimes the walls of the unheated rooms are simply of wattle between posts and are coated with clay on both sides (Fig. 56).

In the steppes and forest-steppe region the type most widely extended is one consisting of wall construction of earth alone. For the construction of the wall they prepare lumps of clay mixed

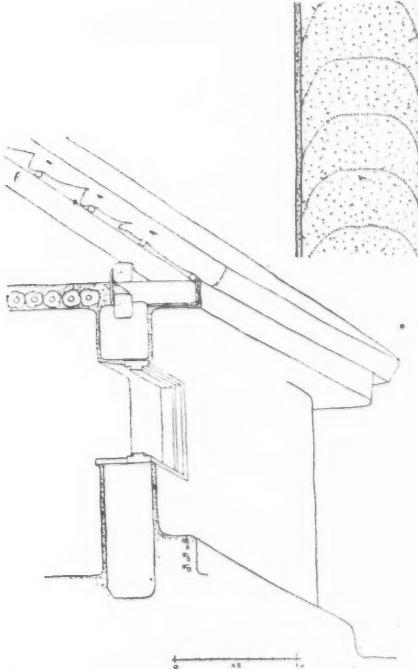


HORIZONTAL SECTIONS.

54. Reeds and clay (Poltava district).
 55. Reeds and clay (Poltava district). A. Poles. B. Reed. C. Clay with straw. D. Outside earth coating.
 56. Plaited wattles and clay (district of Dnyepetrovsk).

addition, the clay coating applied to the compact surface loosens when the wood dries, and frequently falls off. The defects of the compact wall surface between the posts are absent from the following type of construction:—The first board of the wall panel is laid on the ground and on this is laid a layer of lumps

57, 58. The construction of peasant cottage walls from earth lumps (Kiev district).

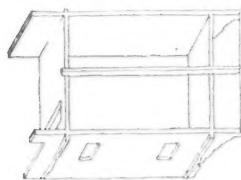


with a large quantity of straw and these they lay flat in the wall. They make the lumps of earth somewhat longer than the required thickness of the wall, so that when the wall has dried out the surface can be finished off by removing any marked irregularities formed during laying. As they lay the lumps of earth in the wall they press down the ends with pieces of board in order to close up any possible chinks and as a preliminary measure of obtaining an even surface. In this way the rolls of clay are given an almost semi-circular form, which is revealed when old walls are demolished (Figs. 57, 58).

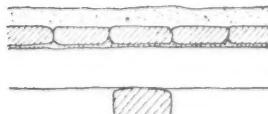
In Podolia (Western Ukraine) a somewhat different method of laying the earth "blocks" is used. They are made from mud of a very stiff consistency and are of a more or less oval shape; they are laid in the wall in a "herringbone" arrangement, i.e. with one course sloping to the left and the next to the right. In this way the wall is given an interesting pattern, and frequently it is left without a finishing coating of clay.

The rammed earth type of wall construction is less widely used. The earth is rammed in a semi-dry state in vertically movable forms, and in some of the layers in the interior of the wall wood is placed as reinforcement.

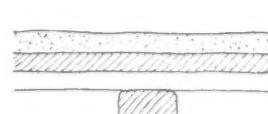
In regions where formerly there were military settlements a widespread method of wall construction made use of unfired earth blocks. Similar blocks, but of a large type, measuring about 11 in. by 11 in. by 5 in., were made and were dried before being built into the wall. This method was evidently introduced from outside but it was not widely used, since it necessitated a considerable amount of work and could not be undertaken by the peasant builder alone. With frame and clay wall construction it is essential to construct a plinth, as not only must the lower part of the wall be protected from freezing but also the penetration of damp through the clay wall to the interior must be prevented. For these reasons and also to increase the durability of the clay wall, its thickness is not uniform; at the lower part the wall thickness is from about 3½ to 4 feet, while at the top it is about 2 feet to 1½ feet. The construction of clay walls is very laborious and much time has to be allowed for drying and shrinkage of the wall; the latter is considerable, usually about 2 inches in about 3 feet 3 ins. of height.



60



61



62



63



64

60 (at top). House carcase showing the longitudinal beam to support ceiling rafters.

61-64 (below). Sections of ceiling beams and clay fillings. (Examples from Kiev district, and Polessie.)

ports under the log wall or in the construction of the lower part of the frame. The reason for the neglect of stone is that its extraction and working, its transport to the site and building up into a wall represent laborious and costly work beyond the peasant's power.

Stone is used as a building material in the Southern Ukraine, in the Odessa region; limestone is most used and the usual methods of wall construction are followed.

In the foregoing the basic, most typical characteristics of wall construction in the Ukraine have been described.

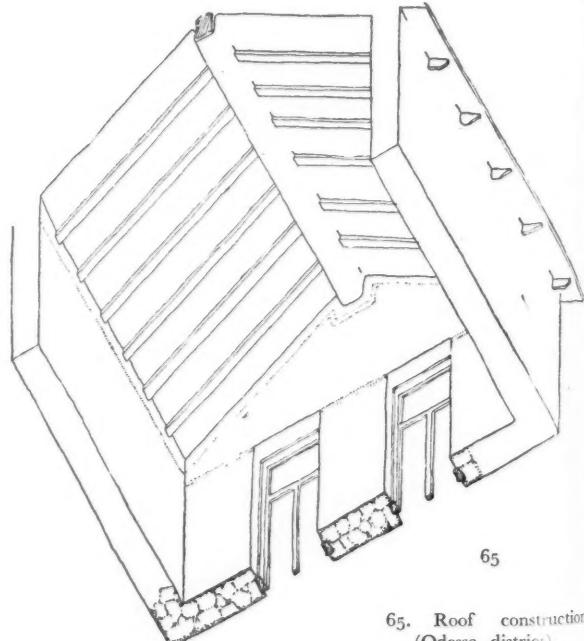
Less diversity is found in the construction of the roofs of dwellings as wood is for that purpose the basic, irreplaceable material.

The construction of roofs has during the past hundred years undergone great changes in the direction of reduction of weights. In old cottages dating from the early nineteenth century, and even yet, one may find very heavy roofs. The main beam of large cross-section was laid centrally on the long axis (Fig. 61), or alternatively across the dwelling. On this the secondary beams were laid, then wide, sawn ceiling boards, and on the boards the layer of clay (Fig. 61).

This type of roof construction, besides being heavy reduces the useful height of the hut. For that reason, the boarding, consisting of boards about 2 ins. to 2½ ins. thick was often laid directly on the principal beam without secondary beams (Fig. 62); or else the boarding was laid on battens nailed to the lower edge of the joists. The method just mentioned is still used where reeds are used instead of boards, and can be seen in the south-eastern part of the Ukraine in the Poltava area.

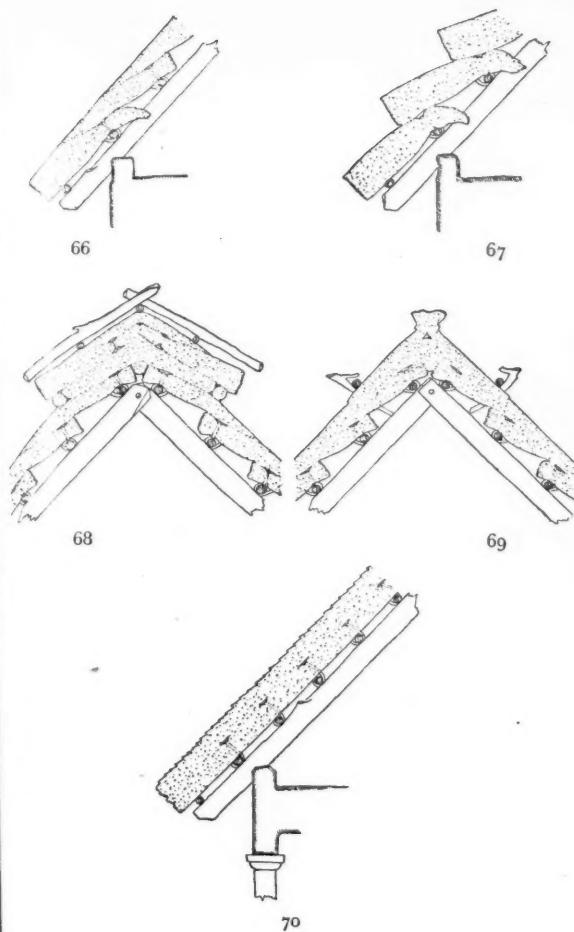
The span between the external walls of the hut or between an external wall and an interior bearing wall is rarely more than about 16 ft.; hence the construction of the ceiling has gradually been simplified and most often consists simply of joists spaced at about 3 feet or 4 feet, while the boards are laid on battens nailed to the joists (Fig. 63). The construction of the ceiling depends on the local available materials; either it consists of the usual boards, or else it is formed of poles. Sometimes straw is twisted round the poles and they are immersed in a bath of mud, then placed in position and covered with a clay coating (Fig. 64).

The entrance has not always a ceiling but the rafters and



65. Roof construction (Odessa district).

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66-70 (reading from left to right in each line). Various forms of thatching and ridge and eaves finishing.

roof covering are usually exposed. This results in a reduction of the cost of the hut and the connection with the loft is simplified as well as the construction of a wide chimney from the stove. The absence of a ceiling over the entry is a survival from the days when the stove had no chimney and the smoke rose from the entry to the roof space.

In the steppe zone of the Ukraine there are huts in which the ceiling is not horizontal but slopes down from the main beam forming a ridge piece) to the outside supporting walls (Fig. 65). The main beam supports also the rafters. It may be supposed that this type of construction was borrowed from the earth huts of the Zaporozhe Cossacks (Zaporozhe area of the Lower Dnieper). These huts, which were already known in the eighteenth century, had a gable roof and the earth roofing had a slight slope.

The roof of the hut both in respect of architecture and construction offered the greatest opportunities for the expression of the architect's creative abilities: and in the roof vernacular design has expressed itself by some remarkable and very ingenious types of construction, which are completely adapted to the local climate and materials. These materials are wood (shingles, chips, battens), straw, reeds and tiles.

Like the wood-walled hut, so also the wooden roof is now always more rarely found, and a gradual change to thatch as

roof covering is taking place. The straw thatch roof predominates in the domestic architecture of the Ukraine.

Straw thatch roofs are of two types as regards shape, namely, hipped roofs with projections at the angles and sharply emphasised ridge, and a smooth roof of streamline form.

The surface of the roof slope is covered with small separately bound sheaves of straw with the ears downwards. These sheaves are secured to the roof batten with twisted straws from the sheaf (Fig. 66). It is difficult, however, to use sheaves of this kind on the lower slope of the roof and at the angles between the slopes, because gaps are easily formed between the sheaves at those positions. Another form of sheaf is used there; these sheaves are bound at the ears and are secured to the roof with the ears upwards (Fig. 67). These sheaves give the lower part of the roof an even covering. At the angles they are placed in such a way that the sheaf forms, as it were, a fan covering up gaps between the heads of the sheaves. In this way a beautiful projecting form of the angles is obtained and the ridge of the roof is developed (Figs. 68, 69).

Thus, the methods of construction unite with aesthetic tendencies to create the very picturesque form of the roof of the Ukrainian hut. The strong wind, however, is the enemy and tugs at the roof projections which are often completely pulled to pieces. One may therefore suppose that the other type, the smooth, flowing roof form, came into use where there was little protection from wind. This obviously accounts for the fact that the smooth straw roof is more widely used in exposed localities. For the flowing form of roof they use bruised straw which is more easily laid on the broken surfaces of the roof. After the sheaves have been placed in position on the roof the surface is made smooth by raking it and the even line of the lower part of the roof is obtained by clipping the ends of the first row of sheaves.

Another method is to cover the roof with reeds. On the same roof battens the twisted reeds are laid and made even by striking the lower ends of the reeds. The reeds are distributed in an even layer so as to give a uniform roof surface. They are secured to the battens with thin osiers or young unbroken straws (Fig. 70). The reed roof is distinguished by its flowing contours and its great durability.

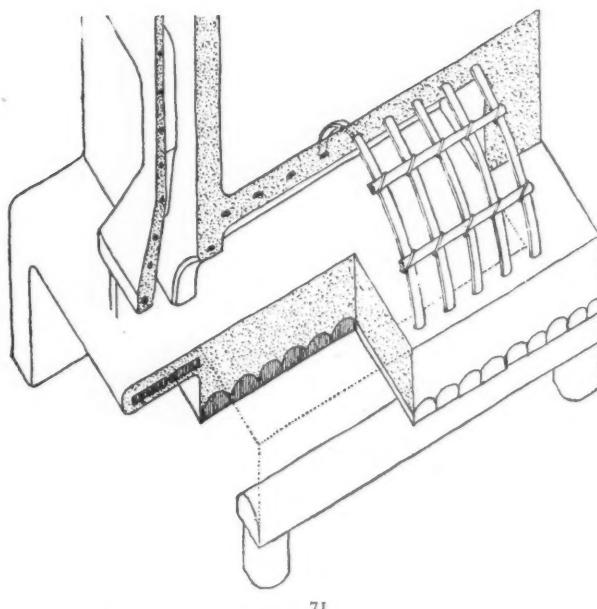
Wooden (shingle and batten) roofs are found in the forest region (Polesie) of the Ukraine. They include gable and hipped roofs, and are constructed in the usual way.

Tiled roofs are most widely adopted in the steppes. The Tatar, Marseilles and "fish scale" types of tiles are used, and are laid in the customary manner.

The most complicated part in the construction of the hut is the cooking stove, for which it is difficult to do without stone or bricks. Here again, however, the village architect displays a dexterous understanding of the material and an original inventiveness. In the construction of the stove from clay, they proceed as follows (Fig. 71): At the four angles four stumps are placed; on these in the direction of the length of the stove they place two bearers and on these a compact floor of half-logs. On this floor layers of clay are placed to the height of the hearth. On this stamped clay surface they erect a framework of thin poles in the form of the arch of the stove. This centreing is then covered with clay and clay is placed also at the sides. When the stove has dried somewhat they begin to heat it, the temperature being gradually raised to the normal temperature. After heating for some time the clay is fired and becomes monolithic, while the wooden framework is gradually burnt away. The smoke box and the chimney are made the same way on interwoven thin branches covered on both sides with clay.

The construction of the stove from fired or unfired bricks offers no difficulties. The arch of the stove is laid on a centreing which is removed when the stove has dried out.

The hut consisting of one living room had no heating stove but only the cooking stove which serves also to heat the dwelling. In the case of differentiation in the internal planning of a hut the need for a heating stove (in addition to the cooking) also arose.



71. Construction of a stove in clay.

Stone or bricks are required for the construction of the heating stove ; it consists of a number of vertical ducts with a horizontal

pipe to the entry side by side with the pipe from the cooking stove.

The types of hut construction described here, apart from the material used, are very simple and economical. The extreme poverty of the peasantry of tsarist Russia obliged them to use the greatest economy in the selection of materials and wall-thickness, to the detriment of the heating and sanitary régime of their living quarters. Insufficient thickness of walls resulted in marked cooling of the interior and the angles froze, and consequently, in winter, the peasant had to keep the walls warm outside by heaps of straw, leaves and other agricultural waste. Thin ceilings also necessitated the use of straw, hay, chaff or the like, for warmth.

Rammed earth walls have many drawbacks. Of all the types of wall construction considered, earth walls are the most complicated in construction and use. When an earth-walled hut is to be constructed it is necessary to determine accurately the ground water level and to provide means of drainage of rain water around the hut ; the projection of the roof has to be increased as much as possible, as otherwise the walls become wet, with all the resulting undesirable effects.

The omission of heat insulation from the floor structure has an unfavourable influence on the comfort conditions in the hut, which has no foundations in the ordinary sense.

A defect of great significance in the peasant dwelling is the inflammability of the straw or reed roof. The roof of earth and straw which was recommended by the rural council (Zemstvo) was not widely used in consequence of its weight and of the complicated method of construction. A great improvement in fire prevention in peasant dwellings has been achieved by the regulation of construction in villages with sufficiently large intervals between the buildings, by green spaces, and by improving the construction of flues, but the radical solution of this problem is none other than the use of non-combustible roofing materials.

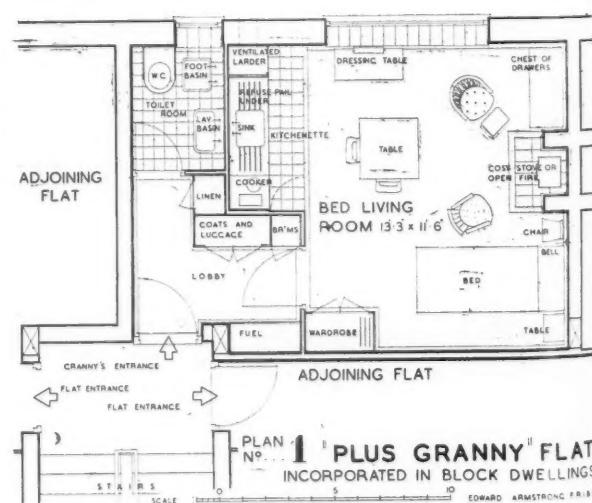
THE "PLUS-GRANNY" FLAT

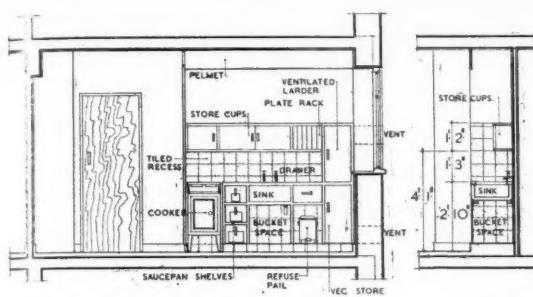
By OLIVE MATTHEWS with Plans by EDWARD ARMSTRONG [F.]

This flat is designed to solve the problem when a grandmother ought not to be left to live alone, and yet is unwilling to give up an independent life, and to surrender all her furniture, to become a member of another household. It provides for a way of living which is semi-detached. There is a connecting door to the family dwelling, so that the old lady is not entirely alone, but is within reach of help at any time. It rests with each family then to decide how much time its members will spend together and how much apart.

To-day there are many families who are worried because an elderly relative continues to live alone when it is not really safe for her to do so. She may be infirm to some extent, and perhaps lonely in her solitary life. Yet she does not relish the prospect of giving up her treasured belongings, and becoming just a member of another woman's household. Evacuation has proved how difficult it is for two housewives to share one house ; it is no easier when they are of different generations. The younger family may include children and young people who are, naturally, rather noisy ; they may like different programmes on the wireless ; grandmother may be fond of them, and yet find it very trying to share one sitting-room with them. In flats such as those illustrating this article which have been designed by Edward Armstrong [F.] all these difficulties can be avoided, since the grandmother has her own bed-living room, and scope for leading a semi-independent life.

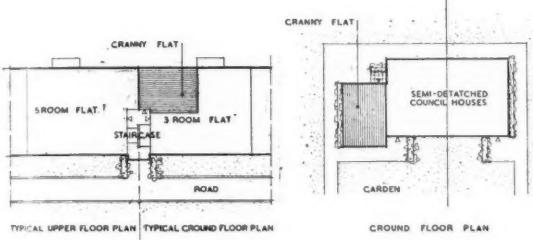
Two separate plans are shown, to provide for town and country. The first could be incorporated in big blocks of city flats, on the ground floor and perhaps on the first floor, but no higher up ; they have been so designed that larger flats would fit in overhead. The second could





ELEVATION OF KITCHENETTE TO PLUS GRANNY FLAT PLAN NO. 1

SECTION



PLUS GRANNY FLAT

INCORPORATED IN BLOCK DWELLINGS

BLOCK PLANS

PLUS GRANNY FLAT

ADJOINING TYPICAL COUNCIL HOUSE

EDWARD ARMSTRONG F.R.I.B.A.

PLAN NO. 2 PLUS GRANNY FLAT
ADJOINING TYPICAL COUNCIL HOUSE

EDWARD ARMSTRONG F.R.I.B.A.

SCALE 1:100

form a one-storey annexe to any ordinary Council house or country cottage.

The first point to notice is that grandmother has her own entrance, so that she can come in and out as she chooses. She need not pass through the family dwelling to go out, which gives a greater feeling of independence, and may be more convenient, since the family may be having their meals at different times, or entertaining their own friends.

The second important point is that she has her own fireside—and, as its necessary concomitant, her own fuel store, placed indoors, so that she never has to go into the cold to bring in fuel. The importance of giving a coal fire to elderly people cannot be over-emphasised; they do not find the same comfort in sitting beside any kind of artificial heating. The bed-living rooms have been designed large enough to allow of two comfortable chairs before the fire, so that the grandmother can entertain a visitor of her own.

A bed-living room should be of ample size, since the tenant will want to bring some of her own furniture, and the pieces may not be small ones. In the first of these plans the size is 13 ft. 3 ins. by 11 ft. 6 ins.; in the second, 13 ft. 4½ ins. by 12 ft. 9 ins.

A built-in cupboard is given for hanging up clothes, but could be omitted as sometimes the grandmother might prefer to bring a wardrobe of her own. If, however, she is giving up a house of her own, she will have to part with some of its furniture when moving into smaller quarters. It is not claimed that these small dwellings will allow of her retaining more than a few of her favourite pieces.

In each case the bed-living room provides a good place for a bed—that is, not facing the window, and with space to move round it when making it, without having to move it. A bell-push is provided by the bed to call the family in the adjacent house or flat in case of emergency.

At the end of each bed-living room the kitchen fittings are grouped to form a continuous unit, with a flush working top level with the hot-plate, the whole being arranged at a suitable height for old persons. Below the work top is a saucepan rack, adjoining the cooker, and there is a recess in which the refuse-pail, with pedal-operated lid, is kept. Larder and vegetable store are planned against an external wall with adequate ventilation. Cupboards and plate-rack are provided above the work top. In the first plan the kitchen alcove may be screened off from the bed-living room by a curtain, or by a curtain and partition. In the second plan the alcove becomes a kitchenette with its own door-opening and sliding door. If the stove is electric, a curtain could be drawn right across. If it is a gas cooker, no curtain must be allowed within reach of its rings, but a partition, made to fold back on hinges, could be provided to hide it from the room.

With this provision for cooking, keeping food and washing up, the old lady can have her meals independently or may join the family. She might at least prefer to get her own breakfast at a later hour than the one required next door for a husband going out to work or children going off to school; or it might be arranged for her to make her own tea or supper, but to join with her relatives for one good cooked meal during the day.

A separate toilet-room has been provided, containing a W.C., a hand-basin and a foot-bath. It saves a good deal of space and expense not to provide a separate bathroom, and it is felt that she could very well take a bath, when she desires to do so, in the family bathroom, since this does not entail going out of doors. The foot-bath might be an ordinary small sink of shallow type, inserted at floor level, and she could sit on the w.c. when using it. When old-fashioned washstands were used the china basin could be placed on the floor for washing the feet, but a fixed hand-basin cannot be moved, hence the need of a foot-bath.

Good cupboards are essential in small dwellings. Both these designs include a cupboard for coats and luggage, one for brooms and one for linen. They open on to the entrance lobby: had they been placed inside the bed-living room there would have been little wall-space left for furniture.

All Council Housing estates could with advantage include a proportion of these small semi-detached dwellings on their estates, and they would also fill a great need in other walks of life. Many middle-class families would be very glad of similar plans. It is not seriously suggested that their use should be limited to grandmothers. Sometimes a grandfather could very well be accommodated in one. They would also be very suitable for lodgers. In the past, a number of Councils have put a ban on lodgers; they had some reason to do so, since property can be spoilt if lodgers begin trying to cook and wash in a room which has no proper provision in it for doing so, but was designed simply as a bedroom. If, however, the proper facilities are provided, there is no real objection to allowing lodgers. They would sometimes be men, but more often women. Homes like these would prove an untold blessing to women workers, including teachers, district nurses, and land girls, who are specially the servants of the community, and who might therefore urge a special claim to be housed in any public scheme.

It is to be hoped that this new suggestion will be considered by the many authorities now about to launch out on post-war building, for many difficulties would be solved if provision of this kind was made for old and single people.

HEAT CONSERVATION IN SMALL HOUSES

A Paper read at a meeting held on 16 May organised by the Architectural Science Board

A. F. DUFTON, M.A.

Some of you may have read, in the February number of the JOURNAL of this Royal Institute, an article which I contributed on "Thermal Insulation of Buildings." In this article I stressed the need for a better appreciation of the benefits which accrue from the proper use of insulation and pointed out that, whenever insulation is provided, additional advantages are gained which are not usually taken into account when the economic value of insulation is assessed.

My talk this evening is also mainly about thermal insulation, but I hope to treat the subject in a different manner and I propose to begin by considering the provision of hot water in small houses. Hot water on tap is a valued amenity and a supply of 250 gallons a week, at a temperature of 140 deg. F., is generally regarded as sufficient for a small house. You will all know, I feel sure, that to provide this amount of hot water it is by no means unusual to burn one hundredweight of fuel in an independent boiler and very often much more is burned. But it may not be quite so well known that the heat could be provided by half this fuel—eight pounds a day, or half a hundredweight a week.

I learnt something about hot water supply when I first set up as a householder. In the house which I bought, hot water was supposed to be provided by a combination range. But the system was ill-designed; the primary circulation was about 50 ft. long and the pipes and the 20-gallon storage tank were unlagged. The supply of hot water was quite inadequate.

It would have been easy to blame the small boiler of the combination range for this inadequacy and to have installed a larger independent boiler, but I decided that it would be preferable to give the small boiler a proper chance of showing what it could do. I altered the layout and installed a 40-gallon tank well insulated with cork. The fitter who carried out the work for me, a man of considerable experience, was insistent that the boiler power was much too small for such a large tank and prophesied failure. The experiment, however, was successful; and the steady supply of heat from the small continuously burning fire in the range gave a plenitude of hot water. Baths averaged not less than two a day and most of the laundry was done at home. The range was not a modern appliance but it cooked, heated and supplied hot water on 18 lb. of coal a day—at a cost, with anthracite at 71s. a ton, of 48 pence per week.

It is easy to be prodigal and to waste the heat from stored hot water, by warming an airing cupboard excessively, for example, or by a too generous provision of heated towel rails. First things must come first, and a hot water system is no good unless it does provide hot water.

It is a truism that every increase in the insulation of a building tends to reduce the fuel bill; and where by good design and wise choice of materials the insulation of a proposed building can be improved at no greater expense, such improvement is all clear gain. But when improved insulation can only be obtained at some additional cost the question arises as to what expenditure can be justified. This question is purely one of economics and the general answer, which is presumably what architects require, is broadly given by experience. It has been found, for example, that in our climate and with our methods of heating, a nine-inch brick wall has hitherto been reasonably economical for a small house.

Times are changing, however. Much more fuel is being consumed and houses are being heated more generously. There is clearly a need for improved insulation and the enlightened architect will look ahead and build not only for present conditions but for the probable life of his building.

The great increase in the consumption of fuel to which we have recently become accustomed is not generally realised, and I

would like to illustrate it by reading to you a brief extract from Cobbett's *Rural Rides*. In 1822, Cobbett wrote: "And, then in the great article of fuel! . . . It is miserable work, where this is to be bought, and where, as at Salisbury, the poor take by turns, the making of fires at their houses, to boil four or five teakettles. What a winter-life must those lead, whose turn it is not to make the fire! At Launceston in Cornwall a man, a tradesman too, told me that the people in general could not afford to have fire in ordinary, and that he himself paid 3d. for boiling a leg of mutton at another man's fire!"

In an unheated house, insulation does not yield a big dividend.

There is a very widespread notion that for a particular construction, such as a brick wall, there is a precise constant, known as the thermal transmittance, or air-to-air transmission coefficient, which may be used in computing the heat loss through that wall. It may be well, therefore, for us to be reminded not only that the air-to-air transmission coefficient is a highly empirical quantity but also that heat-loss calculations are still based very much upon a combination of rule of thumb and experience.

[A slide was exhibited showing the results of the measurement, on more than 100 days, of the transmittance of a boarded-and-felted roof.]

It is perhaps of interest to recall that in 1868 Thomas Box, in his *Practical Treatise on Heat* made it quite clear that the radiation transfer of heat must be taken into account as well as the convection transfer and he evaluated separately coefficients for the two cases (a) when a room is exposed on all sides and (b) when only one face is exposed. In the second case the unexposed walls are warmer than the wall on the exposed face and by radiation contribute to the loss of heat from that wall.

Box considered the effects of radiant heat to be of prime importance and, after remarking that when the walls of a room are warmed the occupant breathes air refreshingly cool, he declared that it was evident that to obtain a comfortable temperature the walls themselves must be heated rather than the air.

The significance of the influence of warm walls upon the loss of heat from a room has been discussed from time to time and the view has been expressed * that the principle of radiant heating is so entirely different from that of convection that the old system of calculation will not serve satisfactorily. I do not subscribe to this view and I have suggested that a slight modification will render the same computation of heat loss applicable to any form of heating a room.

When one is dealing with still-air conditions, it is not very wide of the mark to estimate that an increase in the radiant temperature compensates for an equal decrease in the air-temperature, not only as regards the maintenance of the warmth of the room, but also in respect to the contribution to heat loss through the fabric. If the air is at 65 deg. F. and the radiant temperature is 55 deg., there is an equivalent temperature of about 60 deg. F.; and the same obtains if the air-temperature is 55 deg., and the radiant temperature 65 deg. F. In each case, moreover, the heat loss from the room is very much the same, the decreased convection-transfer in the one case being compensated by an increase in the transfer by radiation. It seems, therefore, that if the "air-to-air" calculations are reckoned from the equivalent temperature in a room instead of from the air-temperature, not only is separate tabulation of coefficients upon the lines indicated by Box unnecessary, but calculations for heat loss are generally applicable to any form of heating.

This argument may be presented in another form. If the heat-losses are calculated for two similar rooms, one of which has two

* Barker, A. H. "The Principles of Calculation of Low Temperature Radiant Heating." *I.H.V.E.*, J. 1931.

walls exposed, that is two cold walls, and the other only one, and the same air-to-air coefficients are used, the heat-loss from the first room will be relatively over-estimated, because the radiation exchange between the two exposed walls does not contribute to the loss of heat from the room. In practice this over-estimation of the heat-loss will lead to a higher air temperature being obtained and a higher air temperature is advantageous because it compensates for the cooling effect of the second cold wall.

While we are looking back at Box's treatise, it is interesting to notice the change which has taken place in the consideration which is given to the heat lost by the floor or ground and to the heat lost by the ceiling of a room. Box tells us that where the ground is covered by a building it will take pretty nearly the mean temperature of the earth at that place (50 deg. F. in the case of London) and, that as this is pretty nearly the average temperature of our dwellings in the cold season, the loss of heat from this source will be nothing.

"When the room is covered with an ordinary lath-and-plaster ceiling," Box proceeds, "and that again protected from cooling influences by the roof, the loss will be so small that it may be neglected. . . . But where there is no ceiling, and the roof itself is exposed to the heated air in the building, there will be a great loss of heat, but one exceedingly difficult to estimate."

Tradition dies hard, and we find here, perhaps, the reason why, in general, so much more attention has been paid to the characteristics of walls than has been devoted to floors and roofs. The loss of heat through a modern plaster-ceiling below a roof of tiles on battens cannot be neglected as it is nearly twice as great as the loss through an equal area of 11-inch cavity walling.

Having now explained how highly empirical the thermal transmittance coefficient is, I must go on to pay tribute to its usefulness. This usefulness has been greatly enhanced by the compilation of an authoritative list of coefficients by the Institution of Heating and Ventilating Engineers. The Institution has made its data generally available by publishing a little brochure entitled "Recommendations for the Computation of Heat Requirements for Buildings." The brochure contains not only overall coefficients for various walls, floors and roofs, together with allowances for height and for intermittent heating, but also conductivity data and instructions how to calculate overall coefficients for composite walls, floors, and roofs.

Much of the conductivity data is from tests made at the National Physical Laboratory; and the overall coefficients are in agreement with measurements made in a heat-transmission laboratory at the Building Research Station. The work at the Building Research Station showed that it is possible, in the case of simple structures, to compute, with sufficient precision for practical purposes, air-to-air transmission coefficients from the conductivities of the component materials.

Perhaps I may digress for a moment to mention that there are many types of structures which are too complex to be treated accurately by computation and for which the thermal transmittances must be obtained by direct measurement. An ordinary tiled roof on joists and battens is an example of such a structure.

With the publication of authoritative coefficients and conductivity data, it has now become practicable for standard requirements to be formulated. The following standards for houses and flats have been published by the Ministry of Health and the Ministry of Works, in *Housing Manual 1944*:-

FOR EXTERNAL WALLS

External walls under normal conditions of exposure should have a heat transmittance coefficient not greater than 0.3 B.Th.U. per sq. ft. per hour per deg. F.

FOR GROUND FLOORS

Ground floors should have a heat transmittance coefficient not greater than 0.3.

FOR ROOFS

Roofs should have a heat transmittance coefficient not greater than 0.3.

Although the importance of insulation is only now being generally realised, there have been pioneers who have done much to prepare the ground. Of these, I would like to mention in particular Count Rumford. Rumford was a great experimenter who devised methods of measurement and made determinations not only of the thermal conductivities of insulating materials but also of the calorific values of fuels. He strove to find out how to heat and light buildings economically and well. This was a subject which he had much at heart, and when he founded the Rumford Medal of the Royal Society, he wrote to the President: "The objects which I have more particularly in view to encourage, are such practical improvements in the generation and management of light and heat as tend directly and powerfully to increase the enjoyments and comforts of life, especially in the lower and more numerous classes of society."

I do not think it is generally known that Rumford devised the cavity wall 150 years ago to improve the insulation and to make a wall easier to warm. His proposals for a 13½-in. cavity brick wall anticipate, I believe, Dearne's hollow wall, in which the cavity was not continuous, and Silverlock's rat-trap bond.

Rumford was an advocate of double glazing, as will be seen from the following brief extract from his proposals for heating the hall of an Institute:-

"When the hall which it is desired to heat is very large, and has several large windows, it is indispensably necessary to begin by making the windows *double*; for without this precaution the continual cooling which will take place through single windows will be so great that, no matter how much wood is burned, it will never be possible to warm the apartment uniformly throughout, and as soon as the fire ceases to burn, the room will quickly become cold.

"There would be no use in employing the best stoves to remedy these inconveniences. Close to the windows it will indeed be possible to feel the heat caused by their calorific radiations; but nothing can hinder the currents of cold air, caused by the cooling which takes place through the panes of glass, from spreading over the entire extent of the room.

"Those particles of air in the room which are in immediate contact with the glass, finding themselves specifically heavier on account of this change of temperature, must necessarily descend and spread themselves over the pavement, forming currents which are perceptibly cold, and no doubt very injurious to health. But when the windows are double, the layer of air which is enclosed between the two windows being an excellent non-conductor of heat, the inside window is well protected from cold from without and, the descending currents of cold air just mentioned no longer existing, it would be easy, with good stoves moderately heated to establish a pleasant and equable temperature, and to make it permanent, at a small expense."

I wish to say a few words about wallpaper. There is a notion—shall I say a superstition—that wallpaper is super-excellent for improving the warmth of a room. This notion was given a pseudo-scientific basis some twenty years ago when Professor Greig, of the University of Saskatchewan, published the results of tests which he made in 1922 in some experimental houses.* He determined the heat-loss through a 12-inch brick wall with a lath-and-plaster lining battened out to leave a one-inch air-space. This is quite a good wall. Professor Greig then papered the wall with "a very ordinary cheap wallpaper" and again found the heat loss. As the result of his experiments Professor Greig stated that there was a reduction in the heat lost due to the papering of 17.8 per cent. This is incredible; and it is quite easy to compute that to give this reduction it is necessary to use, not a very ordinary cheap wallpaper, but a Brobdingnagian paper 3 in. thick.

This was, of course, twenty years ago: now we are told in the *Housing Manual* published jointly by the Ministry of Health and the Ministry of Works that "A room which is to be used intermittently should . . . be lined with some material of low thermal capacity. A number of thin linings are available . . . but a

*Greig, A. R. "Wall Insulation." *Univ. of Saskatchewan Bull.*, No. 1.

heavy wallpaper, despite its low insulating value will make an appreciable improvement to the comfort of a room."

In order to refute this fallacy and to explain how an insulating lining of small thermal capacity serves to make a room easy to warm I have gone back to the original experiment in which I showed that lining a room with wood panelling makes it easier to warm. I have been able to compute that under the conditions of the experiment the panelling should make the room 5 deg. F. warmer, a figure in quite good agreement with the experiments, which showed that it was actually $4\frac{1}{4}$ degrees warmer. A similar computation shows that a thick wallpaper would increase the temperature of the room less than a quarter of a degree, a difference which can hardly be described as appreciable.

When I spoke just now of the pioneers who stressed the importance of insulation, I might have mentioned Messrs. Heat and Sound Insulation, Ltd., who in 1929 erected two houses, a brick house and a house of similar design built of different materials affording insulation not less than that now advocated. These houses, which, if my memory serves me right, cost £700 each, were built in order to discover what saving in fuel consumption could be effected. The tests, which were carried out by the Building Research Station, showed a definite economy in fuel consumption due to the improved insulation, a saving amounting to 35 to 40 per cent. of the heat-requirements of the brick house.

Mention of these experiments leads me to say a few words about some work at the Building Research Station of the Department of Scientific and Industrial Research on the amount of insulation which it is desirable to provide in post-war houses. Eight houses have been built for research in house-construction and the opportunity is being taken of using some of these houses for a full-scale test of the heat requirements of houses insulated to different standards. What is wanted is some information as to the amount of insulation which would be worth while.

The tests really arise out of the recommendations of a Study Committee and are intended to provide some confirmation of the views of the Committee.

The recommendations of the Committee are conservative and the tests should show whether a higher standard of insulation than that proposed ought to be envisaged. Four grades of insulation have been employed, as shown in Table I.

TABLE I
THERMAL TRANSMITTANCE, B.T.U. PER SQ. FT. PER HR. PER °F.

	A	B	C	D
External walls	0.34	0.25	0.20	0.15
" living room	0.34	0.20	0.15	0.10
Windows	1.0	1.0	1.0	0.5
" living room	1.0	1.0	0.5	0.5
Ground floor	0.25	0.20	0.15	0.10
Roof and top floor ceiling	0.56	0.30	0.20	0.15

Grade A represents the ordinary pre-war house and Grade C the standard recommended by the Committee.

The Report of the R.I.B.A. Committee on School Design and Construction

The Committee was appointed by the Council at their meeting on 13 February 1945 "to consider and report as quickly as possible on the subject of School Design and Construction" and the following members were appointed to serve:—

- Mr. C. G. Stillman [F.] (Chairman), County Architect, West Sussex.
- Mr. W. T. Benslyn, A.R.C.A. [F.]
- Mr. P. W. Birkett [A.], County Architect, County of Lincoln—Parts of Lindsey.
- Mr. D. E. Gibson, M.A. [A.], A.M.T.P.I., City Architect, Coventry.
- Mr. J. Harrison [A.], County Architect, Derbyshire.
- Mr. Julian Leathart [F.]
- Mr. Oswald P. Milne [F.]
- Mr. S. E. Urwin [F.], County Architect, Gloucestershire.
- Mr. E. Berry Webber [A.]

The heating system installed is one of the various combinations considered for post-war houses. Background heating is provided by embedded panels in the ceiling or floor supplied from a heat exchanger heated by a boiler in the kitchen; the living room is "topped up" by an electric fire to an equivalent temperature of 65 deg. F.

As calculations showed that the item for topping up the living room would exceed that for the whole of the background heating, and for other reasons which I needn't detail, it was decided to include experiments in two more houses to ascertain whether it would be advantageous to warm the living room continuously by the central heating installation and to eliminate the topping up.

Five of the eight houses were ready by February 1945, but these five included only two of the four houses in the main programme, one grade A and the other grade B.

The results obtained so far, therefore, are in the nature of a trial run, but they may be of sufficient interest to place on record.

In the month of March (when the average outdoor temperature was 46 deg. F.) the daily consumption of coal for water heating and background heating in a grade A house amounted to 32 lb. In a similar house in which the living room was fully heated, night and day, the consumption was 36 lb., that is 4 lb. more per day. This continuous warming of the living room proved to be much more economical than topping up with electricity for $9\frac{1}{2}$ hours each day: with the prices which had been assumed in the calculations it was clear that the continuous warming by solid fuel would show to advantage even if the daily consumption of coal were half a hundredweight, that is 20 lb. a day more than it actually was.

The daily consumption of coal in the grade C house, heated continuously, was 30 lb., a saving of 6 lb. a day compared with the similarly heated grade A house. This saving may not seem very great—is a week, or the price of a packet of cigarettes as our statistical friends would say—and it has to be balanced against the extra cost of providing the higher standard of insulation; it is, however, not to be despised.

The difference between the coal consumption for background heating and water heating in the Grade B house and that in the similarly heated grade A house amounted only to $1\frac{1}{2}$ lb. a day.

Probably the most important economy is that which can be achieved by careful design of the hot water system. In two grade A houses, in mild weather when the background heating was not required, the weekly consumption to provide hot water and to warm the bathroom was found to be 140 lb. of coal in one house and $16\frac{1}{2}$ therms of gas in the other; and in a grade B house, 137 lb. of coal. This seems excessive and there is clearly room for improvement.

As I have already mentioned, these experiments are in the nature of a trial run and the results are necessarily tentative. It is hoped that the full programme will be carried out next winter.

The Report of the R.I.B.A. Committee on School Design and Construction

Owing to illness Mr. Gibson was unfortunately unable to attend any of the four meetings which the Committee has held.

The Committee wishes to record its thanks to Mr. Leathart for his work in drafting this report.

The Committee has considered the subject under the following headings:—

- A. The General Problem.
- B. The Architect's Contribution.
- C. Delays in Administrative Procedure.
- D. Methods of Construction, available Materials and supply of Labour. (With a note on war-time hutting.)
- E. Improvement of Existing Buildings.

A. The General Problem:

- 1. Losses due to enemy action, the virtual suspension of normal school building during the war, the reorganisation of education

throughout the country to conform with the provisions of the Education Act 1944, the provision of school accommodation on new housing estates and the deficiencies in the pre-war building programme, have created an unprecedented demand for post-war school building.

2. Speed in the building of new schools is a vital necessity and it is doubtful if pre-war methods of construction and finishings can be followed in the production of a sufficiently expeditious output of building to fulfil all needs.

3. Available immediate post-war resources of materials and labour are relatively slender and are likely to be concentrated at first on rehousing.

These facts lead to the consideration of the type of building, which will accomplish all that is required in the quickest possible time.

The following observations arise therefrom :—

- (a) Until building trade conditions are fully restored to pre-war standards a limitation on the range of materials and availability of labour will inevitably place restrictions upon design. The enforced adoption of substitute materials and their effect upon construction and design may well result in buildings of unconventional appearance and to some extent of untested character as regards durability and resistance to hard wear. On the other hand, greater speed and facilities for future alterations can be expected.
- (b) Rigid uniformity in constructional methods and the use of substitute materials irrespective of the diverse climatic conditions which prevail in the north and south of England, is undesirable.
- (c) Equally undesirable is an absolute standardisation in planning and design which fails to observe site conditions, local building traditions and the customary practice of skilled building craftsmen.
- (d) In districts where there may be a sufficiency of materials such as brick and stone and an adequate supply of labour, there should be no reason for the adoption of temporary expedients in construction. Where no such initial advantages occur, substitute materials at first used for wall-cladding, may have to be replaced later by those of better and more durable quality as and when they become available from production sources. This point is amplified under "Methods of Construction and Availability of Materials and Labour," where a suggestion is made on the feasibility of combining both categories of materials in one building. (See D, paragraph 3).

B. The Architect's Contribution :

It is probable that we are entering a decade of strictly utilitarian building. The success of utility building, from the architect's viewpoint, lies in the assemblage of the component elements of the plan into a well-organised composition, in the full and correct use of colour and texture and in a pleasant treatment of the site layout. Much can be done to enhance the appearance of a simple building by imaginative planting of trees, shrubs and flower beds and the arrangement of approach ways to the school.

Whatever may be the form of the chosen system of construction, it is of the utmost importance that it is expressed in a rational, yet seemly, architectural manner. The School is the physical background to the early and impressionable years of a child's life and the environment of the building and its site-setting created by good design will exert a beneficial influence in character forming at the most receptive age. The child's mind is receptive to the appeal of simplicity in line and form and reacts with enthusiasm to the influence of colour and texture.

As simple form will be the chief characteristic of post-war school design, it is reasonable to expect that the children will be attracted to their new environment. Upon the architect's degree of insight into the mind of the child, will depend the success of his work. A school should not become so detached, architecturally speaking, from its primary purpose as to bear oppressively on the minds of the young.

It is, therefore, of importance that local authorities should be urged to avail themselves of the guidance of qualified architects in the planning and design of their school-building projects. Each individual site presents a new problem in planning and the exercise of architectural skill.

C. Delays in Administrative Procedure :

Present routine procedure to obtain approval consists of a large number of separate operations which fall into three groups :

- (a) Acquisition of site.
- (b) Approval of sketch plans and, later, of working drawings.
- (c) Approval of tenders and contract documents.
- (a) As slow as was pre-war procedure in site acquisition, it is likely to be slower still if the suggestions are adopted that the Ministries of Agriculture and Transport act as consultants before land can be purchased by a local authority. Whilst it is recognised that consultations with these two Ministries is intended to check sporadic building development, the misuse of valuable agricultural land and other kindred evils, there is no suggested machinery of approach to these authorities which is likely to produce expedition. It is suggested that the Ministry of Education should explore the possibility of reducing delays which occur in the acquisition of sites.
- (b) At present there is a two-stage examination of the architect's scheme : at the sketch plan and working drawing stages. Too much delay arises in the official process of approval by the present custom of passing the architect's plans from one specialist examiner to another. It is suggested that one authoritative examiner, conversant with *all* the details of school-planning requirements, should examine and approve. If this is done it will eliminate overlapping in the examination process and simplify the task of discussing amendments with the architect.
- (c) The present official practice of inviting, by open advertisement, all and sundry to tender for a school building contract is inimical to sound building and a waste of labour and time in preparing a large number of copies of the relevant documents and drawings. It is suggested that the authority should prepare a list of contractors of repute who are known for their capability as producers of sound building.

D. Methods of Construction, Available Materials and Supply of Labour :

1. Methods of construction will depend upon the sort of materials likely to be in the most plentiful supply for the next few years. Housing work will absorb a considerable proportion of the output of the brickfields. The use of stone, natural or reconstructed, is likely to depend upon the number of skilled masons available for working and fixing.

Timber supplies imported from abroad will not be plentiful until more shipping is released and economic recovery is within sight.

Ferrous and non-ferrous metals should be in good supply within a comparatively short time and when the industry is reorganised again on a peace-time basis.

2. It follows, therefore, that the use of the load-bearing brick or masonry wall must be curtailed and the adoption of the point-load structural framework considerably extended. A supporting framework of steel sections or of pre-cast reinforced concrete will decrease structural weight and increase the speed of site operations. Pre-assembled framed units made under workshop conditions will produce dimensional precision and facilitate the fixing of standard-size, wall-cladding materials.

3. As the largest section of a school building is composed of teaching rooms, cloak and changing rooms and lavatories, it may be expedient to adopt the steel or concrete frame for their construction in combination with load-carrying brick or masonry walls with plastered internal finishings for the construction of assembly halls, staff and administrative rooms and main entrance halls. By this means architectural significance will be imparted to the focal grouping of the composition and allow the architect a greater freedom of expression.

4. Wherever the steel or concrete frame is used, whether throughout the whole building or confined to the sections named in paragraph 3, it should be designed as the permanent framework of the building. Although it may be necessary to use utility cladding materials of a short-term life at first, these should be regarded as temporary expedients only and should be replaced by permanent materials of a better quality in appearance and durability when conditions permit.

5. Heavy external maintenance costs are inevitable with

temporary facing materials and this recurring item of expenditure will be saved when substitution is effected.

6. Some alternative cladding materials to brick, stone and glazed terra-cotta are glass, resin-bonded plywood, asbestos, non-ferrous metal sheets, and thin pre-cast concrete slabs, all of which need no protective surface treatment. Paper or wood-pulp boards, hard wallboards, wood-wool and plasterboard are unsuitable for external use unless suitably treated. It is anticipated that asbestos, aluminium, copper, stove-enamelled sheet steel, glass, paper or wood pulp boards, hard wall-boards, wood-wool and plasterboard will be in fair supply again in the near future. Scantling timber is likely to be scarce for some time to come.

7. The Government's "fair-for-all" demobilisation programme, unless it is drastically modified in favour of the basic reconstruction trades, will frustrate the return of all young building tradesmen now serving in the armed forces whose demobilisation numbers are high by reason of insufficient length of service. Persistence in applying the principle of demobilisation by strict rotation, therefore, will prevent, for some years to come, the full mustering of building labour resources for reconstruction work.

The quality of building craftsmanship has deteriorated during the war years (due to a large extent to younger men being drafted into the Forces) and this, together with other factors affecting labour conditions, will be reflected for some time to come in a diminished man-hour output.

The less the amount of skilled labour required in site operational work the greater will be the aggregate output of building. This is the substance of the advocacy for a type of building which may well be done by semi-skilled and unskilled labour.

There is reason to expect that Government controlled direction of building labour will continue for some time, with the attendant expedients of designated labour, uniformity agreements and bonus payments.

The rapid training of new entrants to the building industry is essential. Their training should include instruction in the technique of dealing with the erection and assembly of all new methods of construction and the use of up-to-date machine tools.

Notes on War-time Hutting

1. Very little permanent-type school building has been erected during the war; additional accommodation has been provided in the form of standard hutting either of the concrete portal-frame or plasterboard types. Roof construction of home-grown timber with reduced scantlings eked out by the application of plywood gussets with synthetic tarred felt covering has proved to be a failure. Heating has been provided by slow combustion stoves and ventilation left to its own devices, fresh air being introduced through cracks between window and door frames and the adjoining jambs.

2. Standard war-time hutting is definitely sub-standard for post-war school building. The huts are too low for corridors to be provided and natural lighting, heating and thermal insulation are inadequate, while high-level cross ventilation is impossible to achieve. All these shortcomings are fundamental defects in school construction.

3. The huts have been found to be comparatively expensive to erect and maintain, and delays, owing to widely-spread sources of supply of components and breakages in transit from depots to sites, have been all too common. Timber doors and windows supplied with the huts have been consistently bad in quality.

4. The completed hutting is shoddy and ugly in appearance and with the functional and structural disadvantages above-mentioned, it is clear that no useful contribution to the provision of school building can be expected from this source. Its use for school accommodation should be discontinued forthwith.

E. Improvement of Existing Buildings

1. A large proportion of the school building programme will consist of enlarging and improving existing premises. In this work each case requires individual attention, and although it may be possible in some instances to use light-weight structural units for extensions, the greater part of the alterations must be carried out in the traditional manner. Work of this character,

particularly having regard to the difficulties of closing schools for extended periods, must inevitably be slow and costly and will absorb a great amount of traditional building labour and material.

The extent of the improvements required to bring the buildings up to present-day standards and to provide additional accommodation, will vary considerably according to the age, condition and type of school. Many of the buildings are very old, completely obsolete and built in a manner to make them almost incapable of adaptation.

2. The classrooms are too small or badly shaped; they cannot be entered save through other rooms; natural lighting, heating and ventilation is poor, sound insulation bad and the service accommodation, i.e., staff rooms, kitchen, dining room, stores and drying facilities, etc., unsatisfactory or non-existent.

Cloakrooms, lavatory and W.C. accommodation are often out of date and inadequate, and in many cases there is no suitable assembly hall nor facilities for physical education, i.e., gymnasium and changing rooms, etc.

Sites are too small and the playground space insufficient.

In a great many instances it will be quite impracticable to make the necessary improvements and in these cases the schools must be closed and replaced by new buildings.

3. Despite the fact that in probably four cases out of five it would be more satisfactory to rebuild completely, every effort must be made to reclaim as many of the older schools as possible if only to relieve the pressure on rebuilding generally. In doing this, however, careful consideration should be given to the following points:—

- (a) That time, labour and materials required for remodelling should be compared with those required for the erection of a completely new school.
- (b) That the accommodation will be needed for a sufficiently lengthy period to warrant the cost of the alterations.
- (c) That the accommodation can be made to conform to the new standards.
- (d) That the premises, when altered, will be capable of still further adaptations to meet future changes.
- (e) That the return of evacuated children to their homes may make it impossible, in some instances, to dislocate further their schooling by the interruption and disturbance caused by alteration work.

Conclusions

1. Future changes in educational theory and practice are unpredictable, but it will be unwise to ignore the probability of their occurrence. The present-day teaching system bears little or no resemblance to the accepted educational policy of 40 years ago and the development of oral and visual radio transmission, to name but one example, may produce as great a relative change during the next 40 years.

2. The new school-building programme to the standards set forth in the latest School Building Regulations will prove to be a very large undertaking and it is obvious that it will have to be spread over a number of years.

The foregoing observations lead to the conclusion that it would be against the nation's interest if a school building policy were adopted which stresses rigid uniformity in constructional methods and absolute standardisation in planning and design. The danger of such a policy is that the school buildings will act as an obstruction to later experiments in progressive educational development. The old School Boards built standard-pattern schools which were considered adequate for the system of education best suited to the needs of that time. These schools are now hopelessly antiquated and cannot be altered and adapted economically to accord with present-day requirements. So it may be with the schools now to be built, unless the utmost flexibility in planning and constructional methods is adopted.

3. Local education authorities should be encouraged to experiment, under expert architectural guidance, with methods of construction best suitable to local climatic conditions and the use of materials most readily available to them. A school built on the Yorkshire moors needs to be more sturdily founded than one built in the sheltered folds of the Devonshire hills. Local knowledge gained from long experience is, in the long run, the most reliable guide to the achievement of sound building.

TOWN AND COUNTRY PLANNING

INTERIM REPORT No. 8 OF THE R.I.B.A. RECONSTRUCTION COMMITTEE

The Report, abstracted here, is the last to be published of the R.I.B.A. Reconstruction Committee. The present abstract includes for the most part the conclusions and principal arguments, but it is only a fraction of the length of the full Report, copies of which can be obtained from the R.I.B.A. at the price of 1s.

A.—AN ESSENTIAL FOR NATIONAL PLAN

The report amplifies and extends the conclusions previously reached and emphasises the need for early decisions on the necessary machinery for a National Plan, constructive in character, and the immediate setting up of such research organisations as are required to supply reliable information on the many activities which must be included in the plan, including the present and potential extent of mineral wealth and other natural resources.

It has already been stressed that a National Plan must include all activities of the Nation and that from such a plan there can be no exemptions either for Government departments or Public Services.

B.—ESSENTIAL MATTERS FOR RESEARCH INTO NATIONAL RESOURCES AND NATIONAL ASSETS

The following are listed :—

Immediate Needs, a review of national assets and of all public services ; Mineral Survey ; Surface Geology ; Agricultural and Soil Survey ; Afforestation ; Industries : A definite policy of decentralisation : The encouragement of new industries : The improvement of existing industries ; Water Supply ; Land Drainage ; Sewage Disposal ; Electricity ; Gas ; Railways ; Roads ; Canals ; Ports.

C.—FURTHER POSSIBILITIES

Civil Aviation ; River Barrages ; Water Power ; Land Reclamation ; Utilisation of Tips and Spoil Heaps ; Prevention of Atmospheric Pollution.

D.—NECESSITY FOR THE PREPARATION OF A NATIONAL PLAN

Interim Reports Nos. 1 and 5 issued by the R.I.B.A. gave some indication of the administrative machinery necessary for the inception of a National Plan, but it must be recognised that the actual preparation of such a plan necessitates a series of stages in its production, the first of which has already been undertaken by the R.I.B.A. To continue the work will need the calling together of all types of expert opinion affecting the matter.

Experts should form a Planning Commission to be entrusted with the essential work necessary for the preparation of a National Plan.

E.—MATTERS OF POLICY TO BE SETTLED •

Among the matters of national policy to be settled are the following :—

Use of Land

- (a) Steady and planned extension of existing uses where desirable.
- (b) Overhaul or elimination of existing uses which are nationally undesirable.
- (c) Elimination of waste and increase of fertility.
- (d) Reclamation and reinstatement of derelict areas.
- (e) Provident reorganisation of public services and supplies.

Ownership of Land.—Private occupation, either individually or in groups is inevitable, whatever the ownership.

If private ownership is to be continued, it must be supported by a system which enables improvements to be made. Public control is in any case essential.

Any form of nationalisation must carry with it an implied necessity to lease the land to sitting or selected tenants.

Reconstruction Programme

The work of Reconstruction must comprise two major operations :

- (a) Decentralisation of industry and industrial housing.
- (b) Re-grouping within the cities and towns.

These operations are in no sense in conflict one with the other, they are indeed complementary to such an extent that each process would suffer by the omission of the other.

Decentralisation. Decentralisation so far as it may be applicable must be at the head of the programme.

Within limits it is recommended on grounds of :

- (a) The need for dispersal of population.
- (b) The need for "elbow room" in the congested areas and for healthy conditions and surroundings.

The urgency of decentralisation is stressed on grounds of :

- (a) The need to provide for a quick return to homes and to industry on demobilisation.
- (b) The economic use of war factories and other buildings as a nucleus for peace-time production.
- (c) Availability of open sites.
- (d) Large scale national employment of skilled and unskilled labour in road-making, cable laying, waterworks, sewerage, and in the building of houses, workshops, etc.
- (e) The relief of present congestion in towns and cities.

i. SITING OF NEW INDUSTRIES. While there are many industries which must for some basic technical requirement remain in or near to the towns or cities with which they are associated there are many which would benefit by decentralisation provided that good facilities for road and rail transport and services for water, power and light were available and that adequate housing accommodation, shopping facilities and social centres were available for the workers.

The existing war factories, etc., if they are to be utilised economically for peace-time production would, in many cases, decide the location of new industrial communities.

The choice of other sites for industrial groups would be governed by the needs of the principal industries of the district concerned.

ii. AGRICULTURAL CONSIDERATIONS. Notes prepared for Lord Justice Scott's Committee are included in the Report. The notes are under the following heads : Classification of Agricultural Land ; Access to the Countryside ; Control of Land Use ; Rural Zoning.

iii. POSSIBLE AMOUNT OF DECENTRALISATION AND ITS EFFECTS. Decentralisation must be effected without detriment to the well-being of existing communities whether in town or country. The number could not exceed four millions or, say, ten per cent. of the total population.

Effect of decentralisation on existing town and the countryside is considered and such problems as the allocation of land for building and the use of land on the fringes of towns and villages. It is desirable to ascertain in each case what reserves should be retained to allow for regular and planned extensions over a period. The ultimate size of the town must, therefore, be defined in the early stages of its development. The types of agricultural use suitable for the outer belt are stated.

iv. CONTRIBUTING AND LIMITING FACTORS. Factors controlling or affecting the economic operation of industries in

country areas are accessibility and transport, both for raw materials and markets ; the extent of labour available ; the cost of land and cost of providing the necessary public services, and cost of installation and maintenance and the availability of housing accommodation.

The effect on the life of rural communities caused by the introduction of industrial establishments to the countryside is studied. Industrial establishments together with the necessary housing and social amenities will introduce a compact and self-contained urban element. This would create a local demand for farm and dairy produce and in return would offer a means of recreation and entertainment to the farm workers and improvement in services. There must inevitably be a profit and loss account in such a change, but there is much to be said in favour of a closer link between the dwellers in town and country.

The financial effect must be considerable, both to the town which loses an industry and to the community which gains both an industry and increased population. The latter is faced with the provision of schools and public services, which will not be met for many years by increased rateable value. The influx of more highly-paid workers may disturb existing standards of wages and no final solution will probably be found until the wages of agricultural workers more nearly approximate to those of town workers.

The increase of land values will presumably be guarded against

by new legislation following on the report of the Uthwatt Committee. It might be considered whether water supply and certain other public services should be a national charge.

These factors influence the sitings of farmsteads and suggest the grouping of farm workers' cottages as much as is practicable. Some provision may be required for immigrant workers at busy seasons.

Types of industry suitable for rural location and beneficial to rural life. Rural industries and industries ancillary to agriculture or supplementary to agriculture should be encouraged, and types of industry definitely hurtful to rural life should not be where their presence would be injurious.

Non-industrial building. New housing must obviously be located and planned to suit the individual landscape. The small town capable of reasonable development would appear to be the most suitable location.

Social and physical amenities in the countryside. Much has to be done to make the small country town or village attractive from the point of view of modern amenities. Village colleges to encourage adult education, village halls, clubs and hostels to encourage social life, sports and outdoor amusements, open-air theatres and schools as well as an extension of the County Library scheme, might well be encouraged. Trees and woodlands should be wherever possible preserved and all buildings should be designed by a suitable architect.

PART II

THE PLANNING OF VILLAGES AND TOWNS

A.—STANDARDS FOR LIVING

Facts and figures are given as a general guide to "Standards of living" in village and town under the following headings :—*Occupation* ; *Habitation* ; *Surroundings* ; *Density Zoning*. All communities should be encouraged to acquire ample open space within their boundaries, for all purposes, including some proportion of rural area for open space and for market gardens, dairy farming and associated semi-rural industries, so that the average overall density does not exceed, say, ten persons to the acre. Within these boundaries the following densities might reasonably apply :—

In Villages or "Neighbourhoods" : Overall density should not exceed, say, 30 persons to the acre (equivalent to eight houses).

In Suburban Areas : Overall density should not exceed, say, 45 persons to the acre (equivalent to 12 houses).

In Urban Areas : Overall density should not exceed, say, 60 persons to the acre (equivalent to 16 houses).

Although it is physically possible, after providing adequate open space, light and air, to exceed considerably this density in particular cases, the development of all urban sites should comply with the specified conditions, namely :

Proportion of Site Built Over.—For residential purposes, developers should be required to provide open space, either adjoining the building, or within a distance approved by the planning authority, of an area at least equal to the total floor area of all floors of the building.

For business development the same general principles should apply, though it is recognised that the actual proportion of open space would have to be modified.

Public Open Spaces.—The following are the minimum requirements :—

Children's playgrounds within a quarter of a mile of every house.

Allotments, if necessary, within a quarter of a mile of every house.

Quiet spots within half a mile of every house.

Sports Grounds within one mile.

Golf Courses and Natural Reserves should be provided where suitable.

Regional Open Spaces, consisting of a large domain or wide Parkland, within five miles.

National Open Spaces, or National Parks, should include Lakeland, Moorland, Downland and Coastal Reserves.

Schools—Nursery Schools within approximately quarter mile of every house.

Elementary Schools within approximately half mile of every house.

Secondary Schools within approximately one mile of every house.

Technical and High Schools within approximately five miles of every house.

All these should have adequate open space attached varying from, say, two acres in the case of the Nursery School to 3, 10 or 20 acres.

Public Buildings and Shops.—Figures are given for the provision of shops and stores and places of worship.

Units in a Town Plan.—The encouragement of social life and local interest is one of the essentials for a satisfactory town. Each unit of which the town is composed should therefore possess the buildings needed to satisfy its communal requirements.

*Definitions are given of the family unit, a residential unit, a neighbourhood unit, a small town or a self-contained part of a large town, and a large town.

B.—THE VILLAGE

The capacity of this country to feed its people is necessarily limited by the area of land suitable for food production, by manpower absorbed in the manufacturing industries, and by the output per man employed in agriculture.

It is suggested that it would be useful to know, by means of comparative statistics, what might be considered the *maximum* capacity of the existing productive acreage if the necessary labour were available.

After excluding rough grazing in mountainous country for purpose of comparison, there are from three to four times as many productive acres to each agricultural worker in this country as compared with Denmark.

It might therefore be inferred that if the man-power were available the capacity for production could be correspondingly increased on the existing acreage of productive land.

The effect of such an increase in rural population, whether desirable or otherwise, would call for serious planning.

VILLAGE HOUSING

Good agricultural land should be avoided unless the land is scheduled for small holdings, co-operative farming or housing.

Plans should provide for a variety of accommodation and for a certain degree of intermingling of the classes.

In all planning, local conditions and needs should receive due attention, but in addition to housing, a balanced community in an enlarged village will require the following appropriately grouped :—

- (a) Public utilities to provide efficient services at economic cost.
- (b) Conveniently situated schools and provision for adult education and leisure time cultural activities for persons of all ages.
- (c) Buildings, grounds and open spaces to cater for recreation, games and sports of all kinds and physical culture.
- (d) Health centre.
- (e) Farm centre and school.
- (f) Shops, Co-operative Stores, Bakery, Laundry, Inns, Hostel and Administrative Offices.
- (g) Places of Worship—Church, Chapel, Meeting House.
- (h) Garage, Workshops, Forge and Smithy.
- (i) Bus Station and Car Park and, in some cases, a Railway Station.

C.—THE NEEDS OF THE TOWN

The various component parts of a town are dealt with in detail under specific headings. The larger the town is, or is likely to become, the more skill is demanded to ensure that the relationship of the various parts shall be orderly and convenient, with room for the reasonable expansion of each section.

Housing.—It is obvious that several types of housing will be required : the cottage type, two- or three-storey flats, and higher blocks.

The demands of those who would occupy the dwellings must be carefully studied and the density should depend, not only on land values, but on what is reasonable to provide good living space and at the same time easy access to places of work and recreation.

Shopping Centres.—Small groups of shops should be provided in residential areas so placed that no one should have to go more than a quarter of a mile to reach them.

Churches and Educational Requirements from nursery to adult education are listed and the main planning considerations discussed.

Business Demands.—The larger town will find its focus occupied by the financial and commercial business, but in the smaller ones, except when county or regional centres, the centre is mainly the chief shopping area. The size of this local area is an important factor in the general town plan and in the smaller towns it will probably include a residential zone, mainly occupied by professional men.

Open Spaces in the Town.—The question of open spaces is a most important one, some of these should be as near as is practicable to the centre of the town, and they may be combined with such important groups as the civic centre, the hospitals, the principal schools. Beyond these, but preferably in contact with them, the main open spaces should be reserved for such purposes as recreation, with pleasant walking routes leading out into open country outside the town. Apart from the immediate demands of the town there are the supplementary ones for nature reserves, the selection of which will depend on the natural beauty of the area, its relative unsuitability for agriculture and its distance from populous districts. Sometimes derelict areas such as old quarries or brickfields, practically valueless, can be converted into quite picturesque informal parks. River banks, sea, and lake fronts are of especial importance and lines for parkways should be laid

down, giving special attention to the linking up of open spaces, access to view points, etc. Provision for new cemeteries and crematoria must be included in suitable positions. Well-planned allotment gardens, with grouped huts as in Sweden, may be made an attractive feature.

The location of entertainment resorts and the hospital group are discussed, and finally industry. The Barlow Report recommendations are further endorsed and it is stated that industrial works are not necessarily ugly. Suitable sites for these depend largely on natural conditions and in the relationship of these to existing and possible lines of supply and distribution. The most important influence on the general plan will be the provision for heavy industry, which seems to suggest a belt along one or both sides of the rail, main road or canal giving transport service.

Communications, Parking, etc.—In large towns, the main lines of traffic must be ample. Openings into the main routes should be limited and direct crossings are undesirable except at certain important points where roundabouts should be provided.

The radial routes should be supplemented by others in a circumferential direction.

The provision of convenient parking places is an important factor in the problem.

Future Expansion.—It is important, by preparation in advance, to facilitate the changes expansion would demand.

D.—POLICY AS TO OPEN SPACES

The provision of open spaces falls into three classes—national, regional and local, all of which are essential on far more liberal standards than in the past.

National Parks are considered and it is suggested that in addition to large reservations for National Parks, a coastal area should be defined, within which building should be prohibited or rigidly controlled.

With regard to the large number of country mansions which inevitably after the war cannot be used by their owners, national steps should be taken to prevent these valuable open spaces and historic monuments from being broken up. They might profitably be nationalised and run by the National Trust. Also, much common land has been taken over for emergency purposes during the war and steps should be taken to secure a return of such lands to their former use.

Regional and local open space should be reserved. Regional open spaces intermediate in size between Local Parks and National Parks. These would supplement the provision of national open spaces and a proportion might well be a national charge as part of the national plan.

Local Open Spaces.—Local open spaces of many kinds and for many purposes include :—

Squares or precincts free from traffic ; children's playgrounds of one to two acres ; allotments ; quiet spots for old people ; sports grounds ; larger parks ; golf courses ; and natural reserves.

Landscape and Civic Design.—Various design problems are considered.

E.—RECONSTRUCTION AND RE-PLANNING OF EXISTING TOWNS

The Position of the Architect.—Schemes of reconstruction or improvement demand the services of a body of highly-trained specialists dealing not only with the technical facts but with matters of law, public health, administration, transport and all the complexities of modern civilisation, and success is best achieved if all these experts are working as a team or Local Planning Commission.

The inclusion of the Architect from the inception of the scheme is particularly important, since the Architect by the nature of his calling is first and foremost a planner whose business it is to synthesise a mass of technical information which must of necessity be at the disposal of any authority responsible for reconstruction and improvement.

The larger Authorities should employ a permanent architectural adviser—smaller units would share the services of one competent man. It is not enough to have first-class architects for individual buildings, because these architects, however brilliant, would not in themselves produce a coherent and beautiful city. There must be a supervising or controlling architect, and it is essential that he should possess the ability needed for his task. Local Authorities might be more certain of securing suitable men if they made their selection from a list of candidates nominated by the Royal Institute of British Architects with the aid of its Allied Societies and such appointments should be subject to the approval of the appropriate Ministry as is at present required in the case of appointments of Principal Officers.

Legislation and Control.—The aim of legislation and control must be to ensure orderly development. Wisely conceived and administered they will safeguard public and private interest and will give encouragement and freedom within the law to farsighted enterprise in utilising legitimate opportunity. They will make it possible to demonstrate that private advantage and civic profit and pride may go hand in hand and that only incompetence and vicious self-seeking need fear restriction.

Economics and Finance.—Economic or financial considerations do not affect the principles of planning, but will finally determine what is or is not practicable. Whatever the system in vogue it should be implicit in all schemes that due regard is paid to all the governing factors.

Scale of Operations.—The co-ordination of all relevant activities and Authorities by planning on the widest possible scale is vital. By this means technical, economic and financial difficulties, which seem almost insurmountable when tackled separately, may be reduced to manageable proportions. A boldly conceived scheme, embracing buildings, transport and all germane factors provides opportunities and economies previously unrecognised.

Research.—Research into modern tendencies and possibilities in all branches of work is now urgently necessary in order to pool existing information and reduce the mass of available statistical material to digestible form.

Actual planning must be based on adequate information, sufficient to forecast limits and needs of urban development and to determine the areas to be held in reserve for possible change or expansion.

Scope of Urban Development.—When a new town is established, it should, so far as amenities are concerned, be reasonably self-contained. Such centres should be sufficiently far apart to avoid repetition of South Lancashire's unwieldy agglomerations.

Planning Considerations.—Correct siting and allocation of areas chosen to ensure proper conditions for the conduct and expansion of industry, commerce and all common activities are first considerations, governed always by dominating unalterable physical and geographical factors.

The actual form of the Plan must be dictated by the physical conditions of the site. We may picture a centre devoted to administrative, commercial, and professional activities and radiating from this a number of areas defined by the natural formation of the ground, containing industrial and residential quarters suitably disposed in regard to each other and to transport routes, and having ample provision for open space and possible expansion and internal adjustment, the underlying principle being that all citizens may be able to live near their work and within reasonable distance of local centres for shopping, culture and recreation.

While siting and intersection of streets is determined by the volume and direction of traffic, architectural treatment of streets and buildings as a whole—whether on formal or informal lines—is necessary to produce satisfying results.

Classes of citizens should not be segregated in separate parts of a city, but living accommodation should be at hand wherever men or women need it and all of it must be attractive as a living place—the town being divided into recognisable entities each having definite relation to the community as a whole.

Sites should be reserved for future public buildings and planted

as public gardens till buildings are actually required with trees placed where they are not likely to be disturbed.

Economy in Ground Space.—Generally speaking expansion or dispersal of inhabitants to suburbs should not be considered until the possibilities of internal redistribution—which is of first importance in achieving economy of ground space—have been considered.

Pooling of Sites.—The sub-division of land into small units—especially in large urban areas—hinders development possible under modern conditions and is detrimental to the interests of the private owner and the public alike.

Pooling of sites, whether by private agreement or under control, can give results otherwise unobtainable, and a master plan—which is a first essential—will show those sites where pooling can be applied with the best results.

Generally it may be said that saving of space due to carefully planned internal reconstruction combined with pooling of sites will help to provide room for people to live in pleasant surroundings near their work.

Ancient Monuments.—Ancient cities, towns, villages, buildings and monuments are an irreplaceable inheritance. Good planners will see to it that they are not wantonly interfered with. Their social value can be immeasurably enhanced if they are rescued from degraded surroundings and provided with skilfully contrived settings.

Humble buildings of quality must be regarded as second in importance only to their greater neighbours. Their destruction to make way for anything new, however apparently important, must be forbidden until every form of adaptation has been examined and it has been proved beyond doubt that they cannot be saved.

General Amenity.—Public sense of propriety is—but must not continue to be—blunted by constant confrontation with avoidable hideousness.

Factories and industrial buildings need not in the main be things unpleasant to work in or to look at. Properly sited and designed they can often be definitely attractive parts of urban and even rural scenery.

The Human Factor.—It should go without saying that the primary and dominating consideration in all planning must be that every citizen shall have the opportunity to live and work not only in healthy but also in agreeable surroundings. Failing this, town or city, however magnificent its civic accoutrements, has not achieved its proper purpose.

Individual man or woman is the unit whose particular temperament and varying moods form the gauge by which success in planning must finally be measured.

F.—STREET PLANNING

The Committee, drawing attention to the recent book by Mr. H. Alker Tripp, suggest that, excellent as are his recommendations as to through roads, much further study is necessary as to the detailed design of the immediately adjoining areas or "Precincts" whether residential or business.

The design of "Precincts" is discussed and of Roundabouts and Traffic Signals. The Committee feel that many of the details of street layout, especially as to traffic junctions, at present in common practice, are unsatisfactory and that early revision of some of the official circulars issued by the Ministry of Transport is necessary and various proposals are made conducing to a more freely flowing traffic.

Private Streets.—As things stand at present it is usual for streets on a new building estate to be partially constructed by the developers who then sell off the building frontages and disappear from the scene leaving the new street in a condition which deteriorates rapidly until such time as the local authority proceeds with the work of making it up.

All the evils of the system arise from the fact that the estate developer is allowed to leave his work in a less than half-finished condition. That this is not a matter of necessity has been demonstrated in a number of districts in recent years by the

developers themselves. There has been an excess of building land available and in order to make their sites more attractive the developers have themselves completed the street construction and sold the plots "free of road charges." They put in the sewers and construct a complete, or nearly complete, carriageway before building operations begin. All services are in the footways which are made up and finished for any frontage as house building is completed. There is no physical difficulty about the matter, and the Committee suggest that this practice should be made compulsory.

G.—CONTROL OF DESIGN

Control of Design is necessary; unless there is some control, the best planning will not produce beautiful towns. Control should cover general form, materials and colours of buildings. The design of individual buildings should harmonise with the character of the street.

The control, either by a single architect or by a panel of architects, appointed and paid by the Local Authority, would:

- (a) Secure the appropriate siting of buildings.
- (b) Assure suitable height both minimum and maximum and obtain a good skyline.
- (c) Achieve necessary accentuations, where required to assist main planning (e.g., terminals to vistas).
- (d) Aim at obtaining the best effect by the use of suitable materials and colours in buildings, so as to achieve harmony or special interest not only in a street, but also at the rear of the buildings.
- (e) Secure the modification of conflicting designs for buildings which are near together.
- (f) Strengthen the hands of architects in their relations with their clients and enable them to avoid things detrimental to the general architectural interests.
- (g) Prevent the erection of unsuitable shop fascias, advertising elevations, illuminations, etc.
- (h) Govern the design and siting of street furniture, such as seats, lamps, litter boxes, pillar boxes, bus shelters, kiosks, street signs, etc., all of which should be designed by a competent architect in the general interest of the whole community.

One of the essentials to obtain satisfactory design is that every building should be designed by an architect.

The general treatment and planting in public parks, street

and gardens, should be directed by an architect with competent technical advice. Each "Planning Region" should employ similar advice for the assistance of the local authorities, architects and planners in the region.

The Methods of Control.—Some of the outstanding difficulties of control arise from the differences in the requirements of building owners.

Building may be carried out in any one of the three following ways:—

- (a) Private developers may erect buildings on their own land. This method does not provide any easy way of overcoming the difficulties mentioned above. Close co-operation between official architects and private practitioners is essential.
- (b) The Local Authority might acquire land and sub-divide it into building sites for sale or lease to private developers, by imposing conditions on the sale or lease, some control could be exercised over materials and heights. This method might solve a number of difficulties.
- (c) The Local Authority might—if powers were made available—not only acquire the land, but also erect the buildings, leasing premises to those who wished to use them. Under this method buildings could be erected to suit the requirements of tenants who would themselves carry out most of the internal work and finishings. Fluidity in planning could also be achieved as the tenant requiring ground floor space only could be easily accommodated, the upper floors being let independently as offices, or being amalgamated with the upper floors of adjoining premises. From the point of view of architectural control, this would clearly be the most effective solution.

In order to get comprehensive architectural treatment for a particular area of a town, it is recommended that a model should be built showing in block form the heights and colours of the buildings. Perspective drawings might suffice but would be a much less effective method of doing this, and it should be the rule that a model should be made of every proposed building in the town. The model could be placed in position in the master model of the city and should be approved before the design is accepted. In Sweden this is a general practice; and the cost of the model to a scale of 24 ft. to 1 in. which is quite adequate, should only be about £5 for a really big building; the cost, therefore, can be no objection to the proposal.

PRACTICE NOTES

EDITED BY CHARLES WOODWARD [A.]

TOWN AND COUNTRY PLANNING

Acts of Parliament

Requisitioned Land and War Works Act, 1945

This Act came into force on 15th June 1945 and applies to England, Wales, Scotland and Northern Ireland. It enables the Crown to acquire land on which government war work has been done. The acquisition can extend to land contiguous or adjacent to the site of the works if, in the Minister's opinion, such land is necessary for the proper use and maintenance of the works. The powers are exercisable if the works were constructed wholly or partly at the expense of the Crown or some other person having no interest or a limited interest in the land and in the Minister's opinion:—

- (a) The value of the works ought to be preserved either for the Crown or the other person for the carrying on of the trade or business for which the expense was incurred.
- (b) The right to use the works ought to be secured for the Crown or some other person.
- (c) The right to determine the use to which the works are put should be secured for the Crown.

Land which has been damaged by government war use can also be acquired by the Crown where the value of the land has been diminished by such use if, in the opinion of the Minister, it is desirable in the public interest that the land should be dealt with in a particular manner with a view to total or partial rehabilitation and is only likely to be so dealt with if it is acquired. The acquisition can extend to contiguous or adjacent land which, in the opinion of the Minister, must be held with the land damaged by war use if this is to be properly dealt with. Easements and rights restrictive of user can be acquired in respect of

any other land if, in the opinion of the Minister, it is essential to the full enjoyment of the acquired land.

Restrictions on user or as to building on land upon which there are government war works and which land has been acquired may be discharged or modified so as to retain the works and the reasonable user for public or private purposes. Compensation is payable if the discharge or modification lessens the value of the interest of any person entitled to the benefit of the restriction.

Notices as to the proposed acquisition of land and easements and the removal of restrictions must be served on an owner or lessee and the local planning authority, and published in such a way as the Minister thinks appropriate. He must deposit with the local planning authority a map identifying the land, which must be open to inspection free.

Objections to the acquisition may be made by a person having an interest in the land, and by the local planning authority, a society for the preservation of amenities and a society of scientific research where the proposals may affect amenities enjoyed by the public or the progress of scientific research. Unless the Minister decides not to proceed with the acquisition he must refer the proposals to the War Works Commission for a report.

The War Works Commission is appointed by the King and consists of a chairman and such other members as His Majesty thinks expedient. The Commission hear and consider objections and may cause a local public inquiry to be held.

Where the objection is that the proposals are not in accordance with national or local interests or requirements as to planning and amenities and the Commission, though not satisfied that the objection should be upheld but think it is substantial, must obtain and consider any information or representations from the Minister of Town and

Country Planning. This provision does not apply where the Board of Trade certifies that the land to be acquired or the easement or restriction to be discharged or modified is or is part of industrial premises, or that the premises owe their character to government war work, or that it is expedient for the Crown to be able to dispose of the premises, and the Minister of Town and Country Planning certifies that the proposals are, in his opinion, consistent in the circumstances with the proper use and development of land. The provision does not apply where the land to be acquired includes the whole or any part of a common, open space or fuel or field garden allotment or belongs to a local authority.

Having heard the objections and considered the proposals the Commission then report to the Minister. The Minister must send a copy of the report to the objectors and publish it as appears to him to be appropriate.

If the Commission's report is adverse to the Minister's proposals he may not proceed unless one of the grounds for the acquisition was that the right to use or determine the use of the works ought to be preserved or that contiguous or adjacent land ought to be held or that the acquisition of easements or the discharge of restrictive rights are necessary to the full enjoyment of other land. In this case before proceeding the Minister must lay before both Houses of Parliament the Commission's report and the reasons why he intends to proceed despite that report. If either House resolves that the proposals shall not be proceeded with otherwise than in accordance with the Commission's report the Minister is bound accordingly.

Where the land proposed to be acquired consists of either a dwelling-house or garden or park of a dwelling-house or that easements or restrictions in connection therewith are proposed to be acquired or discharged and the Commission report that the amenity and convenience of the dwelling-house would be seriously affected by severance or by the discharge or modification of easements or restrictions and further report that the land ought not to be acquired or the easements or restrictions discharged or modified the Minister must not proceed. This does not apply to a dwelling-house constructed in connection with government war works.

Where land is proposed to be acquired on the ground that the value of the works ought to be preserved the Commission may report that providing a person interested in the land pays to the Minister a sum specified in the report, the land ought not to be acquired. The person interested may require the sum to be determined by arbitration or the Commission's report may so provide.

Where land is proposed to be acquired on the ground that it is desirable in the public interest that the land or part of it should be rehabilitated the Commission may report that providing a specified person undertakes the rehabilitation the land ought not to be acquired. If the specified person fails in his undertaking the Minister may then proceed to acquire the land.

The Commission in considering proposals referred to them must have regard to national and local interests and requirements and to planning and amenities. Where the proposal is made on the ground that the value of the works ought to be preserved the Commission must have regard to the cost of the works and the financial advantage to an objector if the land were not acquired and the loss to him if the land was acquired. Where the proposal is to rehabilitate the land in the public interest the Commission must have regard to the practicability and cost of restoration, the desirability of dealing with the land otherwise than by restoring it, and the loss or hardship to any objector if the land were acquired. Where the proposal involves a dwelling-house or garden or park of a dwelling-house or easements or restrictions in connection therewith, the Commission must consider whether the objector's interest is substantial, whether the acquisition is necessary in the interests of the community and whether it can be carried out without seriously affecting the amenity or convenience of the dwelling-house.

Where the land proposed to be acquired consists of the whole or part of a common, open space, fuel or field garden allotment and the Commission think that the works on the land are not substantial or permanent the Commission must report that the proposal shall not be proceeded with.

Where the proposal is to acquire land which is the whole or any part of a common or open space the Minister must not proceed unless each House of Parliament resolves that the proposal ought to be proceeded with. This does not apply where the Minister of Agriculture and Fisheries in the case of a common and the Minister of Town and Country Planning in the case of an open space certifies that land equal in area and as advantageous to the public is provided in exchange.

Work done on land taken for agricultural purposes by the Minister of Agriculture or Fisheries or the War Agricultural Executive Com-

mittee to improve it for that purpose is not to be treated as government war work.

The powers given by this Act must be exercised by the service of notice to treat or an agreement to purchase made within two years from the end of the war period, i.e., two years from when the Emergency Powers (Defence) Act, 1939, ceases to be in force. The power to discharge or modify restrictions as to use of land or building thereon may be exercised at any time so long as notice of the proposal is published in accordance with the Act, or the order is made, before the purchase of the land is completed.

The Minister of War Transport may order the permanent stopping up or diversion of a highway which has been stopped up or diverted under emergency powers and may order as a substitute the provision or improvement of another highway, and that the highway shall be a trunk road. The Minister may also order the retention of a railway, tramway, cable, wire, main or pipe along, across, over or under any highway which have been erected under emergency powers. The Minister must publish notice of his proposal in local newspapers and give notice to the local authority and the owner, lessee or occupier of the land affected. A notice must also be displayed on the highway concerned. The notices must say where the draft of the proposed order may be obtained. Objections may be made within the time stated in the draft order.

Objections are referred to the Commission who must hear them and may order a public local inquiry. The Commission may report that the order as drafted can be made or made as modified by the Commission or that no order ought to be made. In the latter case the Minister may proceed if in his opinion the order is necessary for the proper use of government war works which ought to be secured for the Crown or some other person, but he must lay the Commission's report and his reasons for proceeding before both Houses of Parliament and if either House resolves that the proposal shall not be proceeded with otherwise than in accordance with the Commission's report the Minister is bound accordingly.

There is the right of appeal to the High Court against the validity of an order or that the provisions of the Act have not been complied with.

The power to make orders must be exercised by the publication of proposals within two years from the end of the war period.

A stopping up or diversion of a highway may be continued for two years from the end of the war period. There are provisions in the Act regarding telegraph lines constructed by the Postmaster-General and the powers of owners of land to require their removal.

Where on any land which a local authority under any Act can acquire compulsorily, they have, under Defence Regulations, done work on or used land for a purpose for which they can under any Act acquire that land, they may by an order made by them and confirmed by the Minister who authorised the work or use, compulsorily acquire the land for that purpose. The purpose appears to be either the construction or improvement of a highway, duties under the Civil Defence Acts and duties as a local education authority. Where objections have been made and have not been withdrawn the Minister can confirm the order without a local inquiry being held. This does not prejudice a claim for compensation which has to be assessed by a tribunal.

Any Minister under the Act can maintain and use or authorise the maintenance and use of government war works on land for the purpose of public service or for the purpose for which they were maintained or used under emergency powers. Any Minister can also remove government war works and restore the land and restore land damaged by war use.

If, in the Minister's opinion, he will be unable or unable without undue delay to acquire any easement or right by agreement, he may at any time after two months from the service of the notice to treat, execute a deed poll conferring on himself, and unless otherwise provided his successors in title, the easement or right.

There are savings in the Act in respect of agreements, provisions as to the adjustment of compensation on the acquisition of land and amendments of the Compensation (Defence) Act, 1939.

"Common" in this Act includes any land subject to be enclosed under the Inclosure Acts 1845 to 1882, and any town or village green.

"Fuel or field garden allotment" means any allotment set out as a fuel allotment or a field garden allotment, under an Inclosure Act.

"Open space" means any land laid out as a public garden or used for the purposes of public recreation, or land being a disused burial ground.

Book Reviews

HOUSING AND URBAN REDEVELOPMENT IN THE UNITED STATES

Post-war Economic Policy and Planning. Hearings before the Sub-committee on Housing and Urban Redevelopment of the Special Committee on Post-War Economic Policy and Planning. United States Senate; Part 6, "Housing and Urban Redevelopment."

Reviewed by JOHN MADGE, M.A. [A.]

This is a document of considerable importance, and should be read by all concerned with the broad issues of rehousing policy which face us. Although its direct application is almost entirely limited to the United States, the reader will find that practically every page has some bearing on our own problems.

The Americans appear to be preparing for domestic rehabilitation with much the same thoroughness as has characterised their organisation for war. At an essential stage in these preparations, the United States Senate has set up a Special Committee on Post-War Economic Policy and Planning. Embracing a very wide field, the general purpose of the Committee is to determine what federal action will be required to ensure continuity in the advancement of prosperity. One section of the work has been delegated to a Sub-Committee on Housing and Urban Redevelopment, and the volume under review contains the hearings by this sub-committee of the evidence of government experts, principally of spokesmen for the National Housing Agency.

This is thus not a final report, but is to be compared with one of the volumes containing minutes of evidence presented by a Government Department to—say—the Barlow Commission. No closer comparison is possible, for in this country we have had no authoritative organisation tackling the problems of housing on a similar scale.

The preparation of such voluminous evidence in the United States, and its orderly presentation in this and other reports, are enough to make the British reader realise with dismay how great a task it will be for us to reach the same standard of factual information. Before President Roosevelt's New Deal, initiated in 1933, the United States had hardly begun to think in terms of federal planning, in the sphere of housing or of anything else. Fifteen years earlier, at the end of the 1914-1918 war, the British Government of the time had passed the first legislation accepting national responsibility for the state of housing in these islands. And yet, although we have thus been engaged in public intervention for over twice as long as the Americans, we still lack the factual framework on which proper planning must be based. Nor does there appear to be any comprehensive attempt being made, which would help to fill the gaps in our knowledge. Such collection of statistical information as is being undertaken appears to be patchy in scope and totally inadequate in scale.

It is refreshing to find that the U.S. National Housing Agency, in preparing its evidence, has not allowed itself the doubtful economy of restricting its field of interest. Thus, it first deals with the role of housing in the national economy; by a straightforward marshalling of indices of economic activity, the extreme instability of speculative housing demand is clearly revealed. During the slump, residential construction dropped to a negligible figure. Total building activity fell not only absolutely, but also relative to the sum of all economic activity, and even by 1938 was only about half what it had been in the boom period ten years earlier. This spelled disaster for hundreds of thousands of skilled craftsmen. The inference drawn in the evidence is that national intervention to stimulate building during periods of depression is highly desirable. This is underlined by the fact that, even in the slump, building represented an important proportion of national productive activity. British experience during the same period tends to support the value of state intervention, even though the building boom in England during the middle 'thirties can be attributed more to low general rates of interest than to specific encouragement of low-cost housing.

The next step in the argument of the evidence covers the role of housing in the municipal and family economy. This shows the important part which housing plays in the use pattern of urban land areas. In 22 cities studied, if roads are excluded, houses with their gardens were found to absorb well over 50 per cent. of the total land. By a 1941 estimate of all cities with populations over 100,000, residential property comprised over 50 per cent. of the total assessed valuation, and contributed one-third of total city revenues.

At the same time, this revenue is drawn very unevenly from the areas lived in by different classes. This fact is fairly self-evident, but detailed confirmation was not found easy to come by. The fullest analysis available was made in Boston in 1935 by the city planning

board, which showed that in the high-rent housing areas of that city, each resident paid in revenue two and a half times the amount that the city spent on him; at the other end of the scale, in slum and blighted areas, the city expenditure per resident, while only half that spent on a resident in the better-off areas, was only covered to the extent of 40 per cent. by the revenue collected from him. From this it was argued—to my mind incorrectly—that the elimination of the slums would by itself reduce the net loss incurred by cities in accommodating slum dwellers. This argument of economic benefit from slum clearance obscures one important function of public services—the direct provision of basic necessities to families too poor to pay for them. The real cause of net loss is poverty rather than the existence of slums.

After dealing with the differential health rate as between residents of areas catering for different classes—for which there is plenty of evidence in this country—the report passes to an analysis of material for which there is absolutely no counterpart in Great Britain.

This material was collected in the course of the U.S. Housing Census, undertaken in 1940. To anyone here who has tried to ascertain even such a simple fact as the age of our houses, it is a shock to find that the Americans are able to refer to an official source to discover the answer not only to this, but also to a large number of other important questions relating to the condition of U.S. houses and to the circumstances of their tenants. Our own inability to do so throws into relief the extraordinarily vague way in which we are drifting into our gigantic rehousing programme. It helps to explain, though it does not excuse, the studied imprecision of official British estimates of our future housing needs.

In this country, the more energetic local authorities are now engaged on detailed surveys of the condition of the houses in their areas. Estimates based on these surveys will be of great value, even though no data on rents or family incomes are being collected. But the standards adopted by different surveyors will have no uniform basis; moreover, until every local authority has completed this job, it will be impossible to make any central analysis of the numerical magnitude of our housing problem. As the result of their national Housing Census, the American experts are able to state now that 18.3 per cent. of their houses need major repairs and that a further 19.5 per cent. still lack running water. They can state the proportion of houses that are owner-occupied—actually it is 43.6 per cent., an astonishingly high figure in comparison with estimates of the position in this country. They can give the distribution of houses by rents and, even more valuable, the relation between rents and family incomes. Compare with this Sir William Beveridge's gallant attempt to assess the similar relation in Great Britain, for which he had to rely on a pitifully small and arbitrary sample.

America has the facts, while we have to make do with estimates. And on the basis of their facts, the witnesses from the National Housing Agency are able to propose a ten-year programme of building needed to supply the numbers of houses of different types that will be required. Moreover, making certain assumptions as to the future level of national income, they are able to indicate the proportion of the new houses which, in view of the incomes of their prospective tenants, will need a subsidy.

This is a great achievement, which could only have resulted from systematic analysis of data systematically collected. The presentation has all the simplicity of an American engineering product, and by virtue of its simplicity it does the job. At the same time there is evidence that the statistical information and the inferences drawn from it still lack refinement.

For example, some rather close questioning by Senator Taft, the Chairman of the Sub-Committee, revealed an excessive margin of error in the estimate of the manpower which would be required to carry the programme to fruition. The same wide margin of error is in evidence elsewhere in the Report. It is only fair to add that the National Housing Agency appears to be fully aware that it is still only in a position to supply a sketch plan; their emphasis on the need for greatly extended research facilities is proof of this.

If they need to extend, how much greater is our need. They have started out on a road which we have hardly yet trod. In these islands we have a tradition of social science unequalled by any other country; we have a core of first-class research workers pining, in this field as in others, for authoritative raw material on which to work. We in this country are more likely than the Americans to retain the controls necessary to canalise productive resources into the great task of social reconstruction. We have the tools and we know the job to be done. What we lack is the allocation of resources and of personnel to tackle this urgent and socially remunerative branch of research. What we

lack are the comprehensive national statistics which could help us to gain that synoptic view for which this tremendous problem calls.

How, then, are we to answer the challenge? Is it just a matter of a Treasury decision which could pour money into appropriate research? I rather think that this will not be enough. In the first instance, we have to overcome a certain squeamishness in our collection of information. It is ironic that in America, where the so-called freedom of the individual is far more tenaciously upheld than it is in Great Britain, it has been possible to collect such details of family circumstances as are used in the evidence here presented. One can imagine the outcry against snoopers that would at first fill certain sections of England's popular press if the same thing were attempted over here.

Even more difficult, we should have to overcome the interdepartmental jealousies which would be aroused in the course of preparing a comprehensive analysis. Which of the Ministries concerned with housing and planning would be able to undertake the work? The Minister of Health has for years had his Central Housing Advisory Committee. The Minister of Works has recently appointed a Scientific Advisory Committee. Can either of these committees, alone or combined, so extend terms of reference as to be able to tackle the job? How far will they be able to delve without treading on the toes of other Ministries? If they remain diplomatic, to what extent will their enquiries be narrowed?

It is possible that the Ministries have in the past few years amassed much new information, as a result of dealing with War Damage Claims and repair needs in general. If so, would it not be possible for this material to be published, to show the basis on which official decisions are taken? Its publication would also reveal the extent to which the lack of interdepartmental correlation has been overcome.

Meanwhile, it appears that the United States has at last solved its own problem of overlap by the formation of the National Housing Agency—though this is still only on a temporary basis—and by giving this agency the facilities which it needs to prepare a blueprint for the future. For us the lesson should be unmistakable.

British Architects and Craftsmen, by Sacheverell Sitwell. 8vo viii + 196 pp. + 196 photos, etc. Batsford. 1945. 21s.

REVIEWED BY JOHN SUMMERSON [4.]

This book conveys a sense of enjoyment with sound judgment which one does not meet every day, but it is planned and constructed too flimsily to become the "book with a future" which is the blurb's description of it. Its virtues of intelligence and perspicacity do not, to my mind, compensate for its poor craftsmanship. The trouble is that if one is going to write a book which "goes through the styles" from Elizabeth to Victoria one must choose between writing a shapely text-book and a series of imaginative essays. Mr. Sitwell, it seems to me, has not chosen. He has written the book without choosing and that makes him very uncomfortable to read. After a chapter or two one discerns his method. He is a great collector of material; he has sacked a library—a very good one—for this volume; the loot has then been passed through the mill of his mind, winnowed by his intuition and "treated" by a special, not unskilful, literary process. It has all been done, I imagine, rather quickly and the mill is not exactly a precision instrument. The judgment does not register every time, the intuitions occasionally misfire, and the "treatment" I, personally, find exasperating.

One may probe further into the author's methods. He has his devices. One of them is the Royal plural, whose intention is perhaps to gather the reader under the Sitwell cloak, but whose effect is the humiliating one of enforcing upon him the profound inferiority of his own knowledge (not fair, really, because Mr. Sitwell has his books by him all the time). Most devastating is the conjunction of this with a second device which is to bring in German or Italian place-names or the names of remote composers or painters, books or objects as often as possible and in unexpected contexts. Thus at Kirby "we" are reminded of Lord Cardigan and Balaclava, of Vignola, Caprarola, Villa d'Este, Palladio, Urbino, Mantua, the Fitzwilliam Virginal Book, William Byrd, John Bull, as well as Elizabeth and James I, Thorpe and Inigo Jones. There is nothing wrong in this kind of discursiveness provided it rings true. When it does not ring true it is boring, and in this book it is altogether too mechanical, too much of a device.

I have said that Mr. Sitwell's judgment is good, which means, of course, nothing more than that I agree in a general way with his estimates of men and buildings. But I fancy that most people who know the period will find the nail hit on the head more often than not. Where there are exceptions, one may perhaps be forgiven for supposing

that Mr. Sitwell has not seen the building. If, for example, he had looked twice at Dance's All Hallows, London Wall, he would not have written it down as "a very last essay in the style of Wren" or dismissed its highly original interior as "strict but sensible."

Detailed criticism of the book would be pointless because Mr. Sitwell is frankly and honestly a quarry-man and purposes to give us nothing more than opinions and embroideries over a hewn-out basis of accredited fact. Those who like to pick holes may pedantically do so. Those who do not may learn a great deal; but the unhappy thing is that it is precisely the would-be learners who will find the book so difficult to read. The author goes on and on, gathering great armfuls of facts, over-seasoning them and pushing them out to the willing reader. On and on "we" go from Elizabeth to Jones, to Wren, Vanbrugh, Gibbs, Kent, Adam, something called "non-Adam" and the Regency. The craftsmen (see title) are thrown in, in bulk, between Wren and Vanbrugh and crop up from time to time in the later chapters.

Admittedly, it is not given to humans to re-arrange what history has already arranged with unassailable finality; but you do expect from a professional writer that he will *conduct* you through the corridors of time and not *propel* you with a literary ram-rod.

There is a rich lot of illustrations, many of them excellent, and the jacket is a reproduction of a lovely aquatint of Deptford Church. That this is turned back to front to suit the booksellers is a fact which will only irritate those who know on which side of the church Archer's huge baroque rectory used to stand.

The Houses of Parliament, by Hans Wild and James Pope-Hennessy. 4to. 42 pp. + 47 pl. Batsford. 1945. 15s.

REVIEWED BY H. A. N. BROCKMAN [L.]

The pictures came first and an author was then found to tell their story, but the result awards the author pride of place. Mr. Pope-Hennessy generously assures the reader that the photographs provide point and purpose to the book. They are indeed of a high quality and convey a remarkable picture of this astonishing building. Fine full-page exteriors and interiors (the former less successful in their excellence), linked by interesting incidentals, follow on with due regard to the whole photographic story. Pugin's rich intricacies are most understandingly revealed; the eye of the photographer works through the eye of the camera to an uncanny result, capturing the sombre brilliance of the interiors, magically lit by starry chandeliers spaced in the height of the great rooms and galleries. There is a sad picture of the bombed Common Chamber, a loss which has at least left us with the magnificent anger of Mr. John Piper's oil painting of the fire-branded ruin (not reproduced here, but remaining in the memory).

The photographic story is assisted by the reproduction of some interesting prints, amongst which is a notable engraving of Little Sanctuary by "Rainy Day" Smith, a perfect early nineteenth century still-life of old Westminster. The dust jacket alone (a design embracing both back and front) could almost sell the book. For this the publishers have used an extremely attractive contemporary coloured lithograph of the great building viewed from the Lambeth shore; but the effect is a little disturbing, as it is all the wrong way round. No doubt this is "pictorial licence" on the publisher's part, for you have only to take it off, reverse and hold up to the sun, to enjoy the mellow prospect as T. A. Prior drew it, in spite of the "slight divergencies of detail" for which Messrs. Batsford quite unnecessarily apologise.

The text possesses that conversational competence with which the author so ably tackled his earlier "London Fabric" and "History Under Fire." His appreciation of the warm pomp of these gothicised interiors is conveyed by scintillating descriptions which vividly carry the reader back to the heraldic past of the old Palace and forward again to the alternating thunder and sophistication of the great Victorians: "Lift the lid of the box," says Mr. Pope-Hennessy, "and how many names fly out." The story of the building and its architects is, however, sketched with an elegant disregard for the reality of the tragedy which followed Pugin's association with Barry. One feels that this sad history was almost inevitable when the revealing statue of Barry (reproduced in this book) is compared with the sensitive face of Pugin in the National Portrait Gallery.

The author describes the Houses of Parliament as "one of the most amiable buildings in the world," and we certainly owe this beauty to the extraordinary skill with which Pugin adorned it. One doubts whether Barry could have humanised the magnificent proportions with such genius as did his collaborator. It is indeed a first-class example of the decoration of construction, and Fergusson was very nearly right

who he declared that Pugin should have been a scene painter; an unkind way of admitting that Pugin was an artist whose enthusiasm transcended the technicalities of his art.

This is a thoroughly enjoyable book and the enjoyment of its making was seemingly shared by photographer, author and publisher, who together have provided a worthwhile record of the Thames-side incubator of democracy.

AN IMPORTANT ACCESSION OF SWISS BOOKS

Moderne Schweizer Architektur. Series 1 (portfolio). Series 2, parts. Edited by Max Bill, P. Budry, W. Jegher, G. Schmidt, and E. Streiff.

Schweizer Holzhäuser aus den Jahren 1920-1940, by Paul Artaria. Sm. 4to. 127 pp. inc. 105 photos and 150 plans and details. 2nd Edn. 1942. Wepf, Basel. 8 frs.

Von Bauen und Wohnen : ein Bilderbuch für Laien und Fachleute, by Paul Artaria. Sm. 8vo. 167 pp., inc. 299 photos. and drgs. 2nd Edn. 1944. Wepf, Basel. 12 frs.

Die Organische Erneuerung unserer Städte : ein Vorschlag unterbreitet den städtischen Parlamenten und Behörden ; den Fachkollegen, den Soziologen und Nationalökonomen sowie auch den Hausbesitzern und den Bewohnern finer städtischen Wohnquartiere die obwohl sie dem Hauptteil der Bevölkerung dienen, &c. By Bernouilli. 8vo. 72 pp. 1942. Wepf, Basel.

Gesundes Bauen : Gesundes Wohnen, by Prof. Dr. med. W. von Gonzenbach, Direktor des Hygieneinstituts der Eidgenössischen Technischen Hochschule. 8vo. 196 pp. 1934. Schulthess, Zurich.

Schriftenreihe zur Frage der Arbeitsbeschaffung : Herausgegeben vom Delegierten für Arbeitsbeschaffung. Bautechnische Reihe. 1, 3, 4, 8, and 9.

1. Bauen in Kriegszeiten : **Bautechnische Fragen der Baustoffbewirtschaftung**. Arch. G. Leuenberger und Prof. Dr. M. Ros.
3. Bauen in Kriegszeiten : **Sanitäre Installationen**. H. Meir und H. Liebetrau.
4. Bauen in Kriegszeiten : **Heizung und Lüftung**. H. Lier und H. Liebetrau.
8. Bauen in Kriegszeiten : **Strassenbau**. A. Sutter und E. Schaub.
9. **Sozialer Wohnungs- und Siedlungsbau**. G. Leuenberger, A. Kellermüller, H. Liebetrau, H. Schürch, J. Schutz.

Schriftenreihe zur Frage der Arbeitsbeschaffung : Herausgegeben vom Delegierten für Arbeitsbeschaffung : Volkswirtschaftliche Reihe. No. 6.

6. Das Programm der öffentlichen Arbeiten.

Through the courtesy of the British Legation in Bern the above recent Swiss publications have been received by the Royal Institute of British Architects. They convey, as far as this is possible in print, an up-to-date picture of the way Swiss architecture has developed during the war.

The architecture of the Scandinavian countries and Switzerland has for some time attracted the interest of many architects in this country. These countries usually could be relied upon to provide a healthy stimulus by producing a constant flow of architecture of a high standard. The influence formerly exercised over British architecture by Dudok and later by the Scandinavian school (especially by the Stockholm Town Hall) may well come from Switzerland, and from Moser in particular, in the near future. Meanwhile, the architecture of these countries has freed itself more and more from historical prejudices and is now less controversial and thus even more widely acceptable.

Modern Swiss architecture owes its appeal to its simplicity, which is however rarely austere, its superb finish, and the frequently beautiful setting. It is rarely incompetent and never vulgar. It is thoroughly democratic in spirit and is designed to be enjoyed rather than to impress.

Two types of building attract special attention—houses and schools. The Swiss have cultivated the art of domestic life and civilised housing conditions are available to large sections of the middle class. They may soon lead the world in this sphere, as England did in the Eighteenth and early Nineteenth centuries.

The number of schools built in recent years (which are usually the subject of architectural competitions), their excellent equipment, and the quality and generosity of their design inspire admiration and envy.

The cost averages 1/6 and is occasionally 1/11 per cu. foot. This lavish spending of public money is a vital factor in creating a large body of enlightened "consumers" with whose support architecture can flourish and attain the high level we associate with Swiss architecture.

The Moderne Schweizer Architektur series is well known to English students of European architecture from the first series, which reached England in separate parts before the war. The present accession includes this first series in portfolio with the several hundred plates arranged in classified order and a new series as full as the first with photographs, details, and plans of modern Swiss buildings of almost unrivalled quality. All the greatest architects known to Englishmen are represented well and many others besides. The work is stimulating and nostalgic at the same time.

The series from the Committee on Building Standards (Delegierten für Arbeitsbeschaffung) includes one publication of particular importance, No. 9, on small house planning and design, layout and equipment. It illustrates and describes the latest Swiss building technique as applied to small flats or houses. A large section is devoted to detail drawings of wooden windows, the Swiss standards for which are notoriously high. Site lay-out and insolation is also discussed.

We hope we may be able to obtain other works in this series which deal with timber, electrical installation, reinforced concrete, etc.

Paul Artaria's two books are new editions of books known here before the war.

HOUSING AND COMMUNITY BUILDINGS

Planning the New Nursery Schools. The Nursery Schools Association. 8vo. 40 pp. University of London Press. 1945. 2s. 6d.

A survey of the essential features of school buildings for children between the ages of two and seven years, by a Committee of the Nursery Schools Association under the chairmanship of Mr. Alister MacDonald [F.]

The Education Act enforces on L.E.A.'s the duty of providing nursery schools. This provision is new in our education law and our experience in nursery school design is small. The present pamphlet fulfils a very necessary task by stating simply and clearly all the requirements of a school from site to detailed sizes of equipment. Siting is dealt with first in relation to population densities—one school unit of 40 to serve a population of about 2,000 or three units within an urban radius of $\frac{1}{2}$ mile. The site itself is dealt with next with very strong emphasis on the need for good gardens : "a nursery school without a garden is a contradiction in terms." A good lay-out at Brighton is illustrated. The requirements for buildings are described in close detail and illustrated pictorially and diagrammatically without actual plans, so as to give full scope to the imagination of individual designers. Heating and ventilating, staff accommodation and the different types of provision needed for various age groups between two and seven are dealt with in turn and the survey concludes with schedules summarising accommodation needs.

The report is essential for any architect designing a nursery school.

Hostels for Old People. Friends Relief Service. 8vo. 30 pp. Friends' Book Centre. 1945. 1s. 6d.

A summary of the Society of Friends' wide experience during the war in providing and running emergency hostels for old people. The main purpose of the pamphlet is analysis and representation of war experience to serve long term needs. Includes notes on accommodation, furniture and equipment.

A Place to Live, by Hazen Size. (Canadian Affairs, Vol. 2, No. 7.) 8vo. 20 pp. 1945.

A popular call to Canadian citizens to understand their housing problems and to exert their authority to get the houses they want as they want them. It discusses the reasons for a housing shortage, existing housing Acts, what planning has to offer the ordinary citizen and the scale of the national task. A hard hitting lively pamphlet with a political tang !

Planning for Swindon : Survey and Report . . . as approved by the Town Council, by W. R. Davidge and the Post-war Planning Sub-Committee, Swindon. 4to. 69 pp. + 8 folded maps. Swindon. 1945. n.p.

The Swindon Post-war Planning Sub-Committee was formed in 1942 with Mr. Davidge as consultant. Swindon is divided into two parts, North and South of the Great Western Railway line and works,

and the planning problem is greatly complicated thereby. Mr. Davidge's proposals deal most drastically with the older Southern area, for which a wide central avenue is laid out from the station to the town centre, which is completely re-planned. Round the town a permanent farm belt is to be retained with "small country colonies" established beyond. The special character of these is described in detail; they are to be integrated satellites but not dormitories. Roads and industrial development and extensive open spaces and recreational facilities are planned in detail.

Report on Plumbing for Low-Cost Housing, by the Technical Information Bureau of the Lead Industries Development Council. 4to. 28 pp. 1945. Free.

A short technical handbook on the use and layout of lead plumbing in houses of the type described in the Dudley Report and Housing Manual. Fully illustrated.

Industrial Record, 1919-1939: a review of the inter-war years by Cadbury Brothers, Ltd., Bournville. 4to. 84 pp. 1945. Pitman, 8s. 6d.

A report on the benefits derived from a planned policy in one large socially conscious industrial concern. It contains much of value to town planners on the analysis of shop distribution and on the industrial network from the rural producers of the raw milk to the consumers. Other subjects touched on are: factory obsolescence and replacement, social amenities and education provision for industrial workers.

MISCELLANEOUS HANDBOOKS

Prefabrication. Royal Institute of the Architects of Ireland. 8vo. 20 pp. 1945. 6d.

The report of a Committee under Mr. S. S. Kelly's chairmanship to investigate prefabrication and its application in Ireland. The Committee studied experience in other countries as recorded in reports and articles (first-hand study of jobs was not possible) from two points of view: (1) Is the advantage claimed realised in practice? (2) Would this advantage obtain in Ireland? The Committee find no conclusive evidence of economy in cost but see that economies in time can be made. Improvement has been achieved, and more is possible, in the quality of fittings and components but not with respect to the totally prefabricated building as compared with one of normal construction. It is foreseen that the widespread introduction of prefabrication would tend to make traditional skilled crafts disappear. Working conditions would be improved but this cannot be a decisive factor unless results comparable with traditional methods are attained. Finally they state that for Ireland research and experiment can more profitably be directed to improving normal methods.

Spon's Architects and Builders Price Book, 1945. Edited by C. Young and B. Eugel. sm. 8vo. 273 pp. E. & F. N. Spon. 1945.

This is the seventy-second edition of this well-known standard work. The contents include conversion tables; statement of cube cost of buildings of many types based on 1939 figures; rough approximate estimates for work in various materials and for various parts of buildings such as staircases, etc.; wages rates and grades; labour and materials constants; taking down and removing, etc.; prices; measured prices; day work, etc.

Fleming Bros. Pocket [Steel Work] Section Book. 12 mo. 634 pp. 6th edition. 1944. Issued free by Fleming Bros., 49 Bath Street, Glasgow.

This is a handy pocket book of steel work data, including the usual tables of safe loads and properties, also tables of inertia of plate girder parts, tables of eccentric loads on bolted, riveted and welded brackets with moduli tables and examples of application, foundation data, data on corrugated sheets and on welded members. All information is in accordance with B.S.S. and the latest codes.

Brickwork for Apprentices, by F. C. Hodge. sm. 4to. 180 pp. London. Arnold. 1945. 6s.

This is a thorough text-book for craftsmen by the senior instructor at the Northern Polytechnic. Although intended essentially for bricklayers its wealth of technical detail makes it a work of interest to any architect or architectural student who is specially concerned in craft work; also the good details of flue, foundation, d.p.c., etc., construction are likely to be useful to students of architecture.

Review of Periodicals

1944-45-III (continued)

PROFESSIONAL PRACTICE, continued.

BUILDING, 1945 Jan., pp. 20:

National registration. Article by A. C. Bossom, M.P., on Registration of architects in Britain and U.S.A.

ALLIED ARTS

ARCHITECTURAL REVIEW, 1945 Feb., pp. 62-3:

Industrial design: 1st of new series "Design Review."

TEKNISK TIDSKRIFT (Stockholm), 1945 Mar. 31, pp. 361-:

Industrial design. Articles. Industrial goods and the culture of form, by S. I. Lind. The fostering of a sense of form in the machine age, by Prof. C. Malmsten. Illus.

FORM (Stockholm), 1945 No. 1, pp. 3-7:

"During 100 years." Article by Gregor Paulsson on Swedish industrial art and successive Stockholm exhibitions.

ARKITEKT (Istanbul), 1944 7-8, pp. 179-81:

Byzantine art and the birth of Gothic art. Article by Prof. J. Runciman.

ARCHITECTURAL FORUM, 1945 Jan., pp. 124-8:

Experimental standardised office furniture. Exhibition by A. Lustig, sponsored by Look magazine.

ARCHITECTURAL FORUM, 1945 Mar., pp. 112-8:

Chairs. Analysis of design of Windsor chair and modern counterparts in steel and ply etc.

BUILDING (Generally)

ARCHITECTURAL FORUM, 1945 Jan., pp. 129-36, 138, 140, 142: Post-war building techniques series. No. 1, Construction. New methods and their significance, incl. large span roofs, prefabs, concrete shell.

BUILDING, 1945 Mar., pp. 79-81:

Building standards in the U.S.S.R. by P. Belits-Geiman; incl. details centreless arch of interlocking blocks and "double-bend" ribbed vault constr.

ROYAL ENGINEERS' JOURNAL, 1945 Mar., pp. 29-33:

Building expedients: Iraq. Article by Col. E. M. E. Coghlan. "Juss" or gypsum plaster or mud huts with arched roofs. Light-weight trusses from scrap material.

ARCHITECTURAL RECORD, 1944 Dec., pp. 58-67:

"Products for post-war plans." Classified notes on structural materials and systems, finishes, mechanical equipment, etc., available for post-war building in U.S.

PENCIL POINTS, 1945 Jan., pp. 69-84:

Taking stock for the future. Notes by F. G. Lopez on Bdg. materials and equipment now available or proposed for post-war bdg. Structure, finishes, atmospheric control, lighting, sanitation.

ARCHITECTURAL FORUM, 1945 Jan., pp. 93-112; Feb., pp. 113-:

"Building in one package." Austin Co., one of greatest U.S. building concerns: organisation described. Illus. by war-time industrial work. Building design problems outlined, particularly structures, walls, roofs, lighting, heating and ventilating large factories. Illus.

JNL., INSTITUTION OF MUNICIPAL AND COUNTY ENGINEERS, 1945 Feb. 6, pp. 217-220:

Work of the Building Research Station. Paper by R. Fitzmaurice.

STRUCTURAL ELEMENTS

BUILDER, 1945 Mar. 30, pp. 255-7:

Mechanical soil stabilisation: recent developments in the science. Article by Raglan Squire [F.J.]. Methods and plant.

ENGINEERING NEWS-RECORD, 1944 Nov. 16, pp. 86-70:

Comparative test data on nail-and-pressure-glued plywood beams. Article by D. Countryman.

ENGINEERING NEWS-RECORD, 1945 Feb. 22, pp. 64-6:

Pioneer design in laminated wood I-beams, by S. B. Barnes. 3-hinged arches of 120-ft. span.

ENGINEERING NEWS-RECORD, 1944 Nov. 30, pp. 71-4:

Roofs supported by air pressure. Report by J. A. Wise, Engrg. Research Div., N. York Univ., on tests on 12-ft. diam. model, proving feasibility of 300-ft. span.

IRISH BUILDER AND ENGINEER, 1945 Mar. 24, pp. 131-3:

Shell roofs: use of thin curved shells in large-span roofs. Paper to N. Ireland Assn. of I.C.E. by H. G. Cousins. Illus.

ARCHITECTURAL DESIGN AND CONSTRUCTION, 1945 Mar., pp. 71-2 : Clay block floor developed in U.S.A.

PENCIL POINTS, 1945 January Building Product Facts inset :

Flooring : red and white oak strip. Details.

ENGINEERING NEWS-RECORD, 1945 Jan. 25, pp. 86-9 :

Reconditioning concrete floors to carry heavy warehouse traffic.

ARCHITECTURAL RECORD, 1945 Jan., pp. 107-9 :

Modular design data for post-war metal windows. Standard window combinations. Time-saver standards.

BYGGMÄSTAREN (Stockholm), 1945 No. 2, pp. 25-44 :

Window joinery standards. Article with many detail drgs. of sections, weathering, ventilation, furniture, etc. Glossary of window terms.

WOOD, 1945 Mar., p. 67 :

Standard casement windows. Details and note of E.J.M.A. design.

STRUCTURAL MECHANICS

CONCRETE AND CONSTRUCTIONAL ENGINEERING, 1945 Feb., pp. 23-4 : Design loads for buildings. Editorial on draft code.

BUILDING APPARATUS

ILLUD. CARPENTER AND BUILDER, 1945 Jan. 12, p. 38 :

Flying shores, good and bad. Article by R. V. Boughton. Illusd.

BUILDER, 1945 April 6, pp. 275-6 :

Metal-faced shuttering. Illusd. article on "Flexometal"; metal-faced, ply core.

BUILDING PRACTICE AND INDUSTRY

ARCHITECTURAL RECORD, 1945 Mar., pp. 83-6 :

Stabilising the construction industry. Article by T. S. Holden, President Dodge Corp., reviewing proposals in Nat. Plg. Assn. Planning Pamphlet No. 41.

BUILDER, 1945 April 6, pp. 276-9 :

Post-war organisation of building. Paper by T. P. Bennett. Labour organisation, employers-employee relationships, output, etc.

BUILDER, 1945 Feb. 2, p. 99 :

Clerk of works : Note on legal aspect of functions, by W. T. Creswell, K.C.

MATERIALS

ARCHITECTURAL FORUM, 1945 Feb., pp. 139-44, 146, 150-1 :

Post-war building techniques : Materials. Wood, ply, metals, masonry, plastics, paints, insulation mats. Illusd. notes.

REVISTA DE ARQUITECTURA (Buenos Aires), 1945 Feb. :

Architectural uses of building materials. Special no. on timber, stone, brick, steel, r.c., etc. Well illusd.

BUILDER, 1945 Feb. 23, pp. 155-6 :

New developments in building materials. Report by Jacob Crane, Director of Urban Development, U.S. National Housing Agency. Aluminium, plastics, magnesium. Heating systems, sound transmission.

STRUCTURAL ENGINEER, 1944 Dec., pp. 492-502 :

History of structural testing. Paper by A. G. Pugsley, D.Sc., M.I.Struct.E. Bibliog.

PROCEEDINGS, ROYAL INSTITUTION OF G.B., Vol. 32, Pt. 3, No. 149, 1945, pp. 423-34 :

The air we breathe in town and country. Paper by G. M. B. Dobson, F.R.S., and A. R. Meetham, M.A. Measurement of atmospheric pollution.

TEKNISK TIDSKRIFT (Stockholm), 1944 Oct. 21, pp. 1,205-17 :

Humidity absorption and transmission in building materials. Paper by Dr. C. H. Johannsson.

WOOD, 1945 April, pp. 101-2 :

Preservation of timbers. Dry rot, fungus prevention. Extracts from lecture by B. Hickman, M.Sc., F.R.I.C.

TIMBER DEVELOPMENT ASSN. QUARTERLY REVIEW, 1945 Jan., pp. 10-12 :

Forest Products Research Laboratory. Description of work and organisation.

WOOD, 1945 Feb., p. 34 :

The Italian beetle (*Hylotrupes*). Description of insect and damage.

PENCIL POINTS, 1944 Dec., Building Products Facts Suppl. :

Wood preservatives.

IN-ORPORATED AUCTIONEERS JNL., 1945 May, 337-40 ;

JNL., ROYAL SANITARY INSTITUTE, 1945 April, pp. 85-90 :

Dry-rot in buildings and its prevention. Paper by W. P. K. Findlay, D.Sc., of Forest Products Res. Lab.

TRANS., ILLUMINATING ENGINEERING SOCY., 1944 Dec., pp. 173-5 :

Plastics in modern lighting fittings. Article by D. Starkie, Ph.D.

JNL., ROYAL INSTITUTE OF BRITISH ARCHITECTS, 1945 Jan., pp. 75-82 :

Concrete : its appearance and durability. Paper at R.I.B.A. Archl. Science Board meeting by Dr. N. Davey, F.S.A., M.Inst.C.E., of Bdg. Research Stn. Illusd. (Feb. :) Discussion.

CIVIL ENGINEERING, 1945 Mar., pp. 53-5 :

Permeability of concrete. Article by L. E. Hunter, A.M.Inst.C.E.

Waterproofing methods and materials.

ARCHITECTS' JOURNAL, 1945 Feb. 15, pp. 137-41 :

Foamed slag hollow block : light-weight structural block character and use described by M. Gallai-Hatchard. Illusd. by example cottage in Somerset by C. J. Woodbridge and R. Riches.

COUNTRY LIFE, 1945 Mar. 16, p. 461 :

Making bricks by hand. Short article by D. H. Robinson.

ARCHITECTS' JOURNAL, 1945 Jan. 25, p. 90 :

Acid-resisting paint. Note in Questions and Answers col.

ILLUSTRATED CARPENTER AND BUILDER, 1945 Feb. 23, p. 206 :

Cement paint : what it is and how it works.

PENCIL POINTS, 1945 Mar., p. 105 :

Ultra-violet transmitting glass—aluminium metaphosphate glass. Note on Monsanto Chemical Co. product.

TEKNISK TIDSKRIFT (Stockholm), 1944 April 29, pp. 501-8 :

New materials—new methods. Article by engr. R. Lysell, largely on use of metal pressings for housing, house equipment and vehicles.

CONSTRUCTION, including STANDARDISATION, PREFABRICATION

JNL., INSTN. OF ELECTRICAL ENGINEERS, 1945 (pt. 1) Feb., pp. 73-7 : Standardisation. Abstract of address by J. A. Harle, M.Sc. Electrical apparatus.

ILLUSTRATED CARPENTER AND BUILDER, 1945 Mar. 2, pp. 230-4, 240 : Prefabrication. First article by R. V. Boughton in new series to "illustrate and explain all the best details and principles."

ARCHITECTURAL DESIGN AND CONSTRUCTION, 1945 April, pp. 79-83 :

BUILDING, Mar., pp. 60-5 : French prefabrication. Detailed review of French prefab. exhibition at R.I.B.A.

ILLUSTRATED CARPENTER AND BUILDER, 1945 April 20, pp. 426-32, 434 : Smith's building system, reviewed by R. V. Boughton in Prefab. series No. 6.

ILLUSTRATED CARPENTER AND BUILDER, 1945 Mar. 23, pp. 311- : Uni-seco prefab. methods analysed by R. V. Boughton.

PENCIL POINTS, 1945 Mar. Building Products Facts Suppl. :

Mineral-surfaced asphalt shingles (roofing tiles).

ENGINEERING NEWS-RECORD, 1945 Jan. 11, pp. 140-1 :

Building sites stabilised with grout.

ILLUSTRATED CARPENTER AND BUILDER, 1945 April 6, pp. 372, 374 : Walls and the pressure of liquids. Design of tanks and reservoirs. Article by H. W. Newell.

ARCHITECTURAL RECORD, 1945 Jan., pp. 102-5 : Modular design data for masonry. Standardisation with reference to bricks and brickwork. Time-saver standards.

BUILDER, 1945 Jan. 19, p. 60 :

"I am a Moscow bricklayer." Interview with P. Oslov, reptd. from Soviet War News. Speed in building.

ARCHITECTURAL DESIGN AND CONSTRUCTION, 1945 Jan., pp. 9-15 : "Simplified brick construction." Article by F. Gollins [A.] on patented type of site-prefab. brick panels for house construction. Illusd.

ILLUSTRATED CARPENTER AND BUILDER, 1945 Feb. 23, pp. 202- :

Reinforced brickwork. Article by F. M. Bowen, A.M.Inst.C.E.

ARCHITECT AND BUILDING NEWS, 1945 April 13, pp. 25-6 : Brick facings : joint or point? Article by E. Gunn on composition and quality of mortar.

JNL., INSTN. OF MUNICIPAL AND COUNTY ENGINEERS, 1945 Jan. 2, pp. 165-73 :

Vibrated concrete in theory and practice. Paper by A. V. Dadlani, M.Sc., A.M.Inst.C.E. Illustrated. Bibliog.

STRUCTURAL ENGINEER, 1945 Jan. :

Fireproof concrete. Paper by A. V. Hussey (chemist). Summarises experiments by D.S.I.R. ; choice of materials, tests.

ENGINEERING NEWS-RECORD, 1945 Mar. 22, pp. 109-10 : Bolts in multiple-timber joints. Article by Engr. Ch. Mackintosh on determination of bearing values.

SANITARY SCIENCE AND EQUIPMENT

JNL., ROYAL SANITARY INSTITUTE, 1945 April, pp. 65-84 : 100 years' progress in sanitation in Great Britain. Paper by H. C. Whitehead, late chairman, Water Pollution Board. Municipal sanitation, sanitary, legislation, sewage purification.

ARCHITECT AND BUILDING NEWS, 1945 Feb. 9, pp. 92-3 :

ARCHITECTS' JOURNAL, Mar. 8, pp. 196-7 ;

ARCHITECTURAL DESIGN AND CONSTRUCTION, Mar., p. 69 :

BUILDER, Feb. 9, p. 115 :

M. of W. prefabricated plumbing unit : illus. and description.

JNL., ROYAL SANITARY INSTITUTE, 1945 April, pp. 91-4 : Water supply : the pollution question. Paper by J. N. Wood, genl. mangr., Sheffield Waterworks.

ARCHITECTURAL FORUM, 1944 Dec., pp. 12-14, 144-6 :

Water supply piping. Article by N. J. Rudder.

JNL., SOCIETY OF ENGINEERS, 1944 July-Dec., pp. 150-67 :

Research experiments and recommendations in connection with the freezing-up of water pipes. Paper by R. F. Power proposes provision of compressible linings to pipes.

JNL., INSTITUTION OF CIVIL ENGINEERS, 1945 Mar., pp. 5-34 : Rural water supplies. Paper by S. R. Rafferty. Types of supply, obligations of undertakers, costs, inspection, storage.

ARCHITECTURAL DESIGN AND CONSTRUCTION, 1945 Feb., pp. 37-9 : Design of small sewage works. Illus.

ELECTRICAL SUPERVISOR, 1945 Mar., pp. 145-51 : Distribution of electricity in London. Paper by E. J. Jesty, A.M.I.E.E., regrouping of authorities proposed. Notes on historical develop.

BUILDER, 1945 Jan. 12, pp. 35-7 : Daylight in dwellings and schools. Letter by John Swarbrick.

PENCIL POINTS, 1945 Feb., pp. 89-94 : Fluorescent lighting for houses by F. G. Lopez. Tech. and design information.

ARCHITECTS' JOURNAL, 1945 Mar. 29, pp. 250-2, xxxvi ;

HEATING AND VENTILATING ENGINEER AND JOURNAL OF AIR CONDITIONING, Mar., pp. 373-84 ;

JNL., INSTITUTION OF HEATING AND VENTILATING ENGINEERS, Mar.-Apr., pp. 12-34 :

Lessons derived from 20 years of heating and ventilating experience by Dr. Oscar Faber. H. and v. in Bank of England; Earls Court Exhibition; Queen's Hotel, Leeds; Dolphin Sq. flats; Cambridge Guildhall; Barrow Mental Hospl. Air filtration.

PROCEEDINGS, ROYAL INSTITUTION OF G.B., Vol. 32, Pt. 2, No. 149, 1945, pp. 482-503 :

Warmth and comfort indoors. Paper by Sir Alfred Egerton, F.R.S. Heating and ventilation history, standards, fuel economy, domestic water supply and use.

ARCHITECTURAL RECORD, 1945 Jan., pp. 71-7 :

"Flexible heating" comp. for a small house basement incorporating heating plant.

JNL., INSTN. OF HEATING AND VENTILATING ENGINEERS, 1944 Nov.-Dec., pp. 206-33, 257 :

Unit heaters. Paper by G. L. Copping on unit heaters for space heating. Design, installation, control, examples of use illus.

JNL., INSTITUTION OF HEATING AND VENTILATING ENGINEERS, 1945 Jan.-Feb., pp. 265-93 :

Unit heaters. Paper by E. A. Pearce, M.I.H.V.E., discussing trends in design and mfrs.

ILLUSTRATED CARPENTER AND BUILDER, 1945 April 6, pp. 367-8 : Fuels and combustion. Article by A. B. Roberts. Comparison of solid and liquid fuels, chemistry of combustion, etc.

BYGGMÄSTAREN (Stockholm), 1945 No. 5, pp. 76-9 :

Humidity and heat insulation : do we pay enough attention to the influence of humidity on the thermal resistance of our building materials?

ARCHITECT AND BUILDING NEWS, 1945 Feb. 9, p. 95 :

Prefab. hot-water-supply unit, designed by Walter Segal for London and Counties Coke Assn. Illus.

HEATING AND VENTILATING ENGINEER AND JOURNAL OF AIR CONDITIONING, 1945 Feb., pp. 325-33 :

Research on hot-water heating in the U.S.A. Article by C. Tasker. Domestic room heating.

TRANS., LIVERPOOL ENGINEERING SOCIETY, Vol. LXV (1944), pp. 167-210 :

Some notes on district heating installations by Paul G. Kaufmann, A.M.I.Mech.E. Costs, lay-out, efficiency, by-products. Bibliog. Illus.

JNL., ROYAL SANITARY INSTITUTE, 1945 Jan., pp. 28-43 :

District heating and the smokeless city. Paper by D. V. H. Smith, consulting engr. Technical and economic considerations.

HEATING AND VENTILATING ENGINEER AND JOURNAL OF AIR CONDITIONING, 1945 April, pp. 425-30 :

District heating and the smokeless city, by D. V. H. Smith. Analysis of cost of house htg. by coal, gas, elec., dist. htg.

NATIONAL BUILDER, 1945 April, pp. 200-1 :

"Heating laid on" : some notes on a Danish system of district htg., steam and hot water.

HEM I SVERIGE, 1944 No. 6, pp. 750-9 :

The open fire. Article by G. Lindberg illustrating 29 examples, inc. outdoor and "porch" fires.

IRISH BUILDER AND ENGINEER, 1944 Dec. 2, p. 407 :

Design of turf grates. Open grates for peat. Illus.

HEATING AND VENTILATING ENGINEER AND JOURNAL OF AIR CONDITIONING, 1945 Mar., pp. 369-73 :

Air-sterilisation in the U.S.A. : the control of air-borne infection. Paper by C. Tasker.

JNL., ROYAL SANITARY INSTITUTE, 1945 April, pp. 100-112 :

Ventilation of dwellings. Papers by T. Bedford, D.Sc., of Ind. Health Res. Bd., and J. G. Wilson, M.D., M.O.H., Cardiff. Bedford on scientific analysis of ventn. conditions; Wilson on physiological factors.

BYGGMÄSTAREN (Stockholm), 1944 No. 24, pp. 444-5 : Determination of humidity in external walls, by C. H. Johansson and U. Fernlund.

ARCHITECTURAL FORUM, 1945 April, pp. 184, 8, 194, 200 : Television. Note on progress and home use.

PROOFING, including ACOUSTICS

ENGINEERING NEWS-RECORD, 1944 Dec. 28, pp. 78-9 :

Buildings for inflammable atmospheres. Designs for reducing fire risks in small timber bdgs. to eliminate pockets where explosive gases and dusts can collect.

BYGGMÄSTAREN (Stockholm), 1945 No. 5, pp. 76-9 :

Damp and heat insulation properties of materials. Article by G. Hobohm.

JNL. R.I.B.A., 1945 Feb., pp. 97-9 :

Thermal insulation in buildings. Paper by A. F. Dufton, of Bdg. Research Stn. Illus.

CIVIL ENGINEERING, 1945 Jan., pp. 12-16 :

Report on the design of earthquake-resisting buildings to Argentine Engineers' Congress, 1942. From *La Ingenieria*, 1944 May.

IRISH BUILDER, 1945 Feb. 24, p. 89; Mar. 24, pp. 156-7 :

Sound insulation : art. by J. C. Costello, with tables.

ARCHITECT AND BUILDING NEWS, 1945 April 27, pp. 60-1 :

BUILDER, April 27, pp. 335-6 :

Noise and town-planning. Paper by Hope Bagenal.

AMERICAN CITY, 1944 Dec., p. 97 :

"Making war on rats." Short article.

A.R.P., WAR DAMAGE (including REPAIR)

JNL., ROYAL SOCIETY OF ARTS, 1945 April 27, pp. 261-75 :

Camouflage for the protection of civil factories and its application to peace-time purposes. Paper by Wing-Cdr. T. R. Cave-Brown-Cave, Director of Camouflage, Min. Home Security.

PROCEEDINGS, ROYAL INSTITUTION OF G.B., Vol. 32, Pt. 3, No. 149, 1945, pp. 538-48 :

The preservation of museum objects in war-time. Paper by H. J. Plenderleith, Deputy Keeper, Res. Lab. Brit. Mus.

JOURNAL, R.I.B.A., 1945 Mar., pp. 132-3 :

Historic buildings and enemy action in England. Paper to Soc. Antiquaries by B. H. St. J. O'Neil, of Ancient Monts. Dept., M.O.W. Illus.

JNL., INSTITUTION OF CIVIL ENGINEERS, 1945 Feb., pp. 188-97 : Charing Cross Railway Bridge : temporary repairs to war-damaged river span. Paper by E. K. Bridge. Illus.

JNL. R.I.B.A., 1945 Feb., pp. 105-8 :

Monuments of Central Italy. Fourth rept. from Civil Affairs Dept. of War Office. Illus.

BURLINGTON MAGAZINE, 1945 Feb., pp. 35-9, pl. I, II :

The Camp Santo di Pisa now. War Office report on buildings and Benozzo Gozzoli frescoes. Illus.

ARCHITECTURAL REVIEW, 1945 Feb., pp. 60-1 :

War damage, Viterbo: illus. Report and illus. from War Office.

BUILDER, 1945 Mar. 16, pp. 217-20 :

STRUCTURAL ENGINEER, Feb., pp. 77-92 : Repair of bomb-damaged buildings. Paper to Structural Engineers by S. B. Hamilton, of Bdg. Res. Stn.

BUILDER, 1945 Mar. 23, p. 230 :

War damage repairs in the London area: joint memo. of R.I.B.A. and C.S.I. (Jan.) and letter from Chairman of W.D. Commission.

BUILDER, 1945 May 4, pp. 358-9 :

Repair of war damage. Lecture by Sir M. Eve, Chairman of W.D. Commission, on procedure and progress in payment of claims.

ARCHITECTURAL CHRONICLE (Moscow), 1944 June-July (Nos. 6-7), pp. 13-15 :

Use of structural debris for reconstruction works. Note on proposed competition for solutions to problems of use of materials and organisation of works.

ARCHITECTURE CHRONICLE (Moscow) (No. 8), 1944 Aug., pp. 1-7 : Reconstruction of towns and structures ruined by the enemy. Notes on Dnieper Dam; Stalin Factory, Novo-Kramatorsk.

OFFICIAL ARCHITECT, 1945 Feb., pp. 76-81 :

Reconstruction of Smolensk. Article by G. Holtz, member U.S.S.R. Acad. Arch. Illus.

ENGINEERING

PARTHENON, 1945 April, pp. 106-10 :

The Thames Barrage proposals described by J. H. O. Bunge. Illus.

PENCIL POINTS, 1945 Jan., pp. 59-68 :

Watts Bar, T.V.A. : dam, power station. The largest T.V.A. project completed during war. Fully illus.

TOPOGRAPHY

COUNTRY LIFE, 1944 Jan. 26, pp. 156-9; Feb. 9, p. 252 :

Lewes : No. 11 in Old towns revisited series, by W. E. Barber. Illus.

(Feb. 9-) Old houses of Lewes : letter and woodcuts.
 COUNTRY LIFE, 1945 April 13, pp. 634-6:
 Northamptonshire. Descriptive article by R. T. Lang.
 COUNTRY LIFE, 1945 April 20, pp. 678-81:
 Richmond, capital of Swaledale. Article by G. B. Wood. Illus.
 COUNTRY LIFE, 1945 Mar. 9, pp. 420-3:
 Newport, Rhode Island, U.S.A., described by Hamilton Kerr, M.P.
 Illus.

TASK (N. York), No. 6, Winter 1944-5, pp. 11-27:
 California Special No. Articles: "What Californians can do";
 Problems of regional planning—Central Valley and Columbia River
 Basin projects for dams and irrigation; Rural housing and resettlement;
 the "business" of housing in California; Los Angeles: article on
 historical growth.

JNL., CHARTERED SURVEYORS' INSTITUTION, 1945 Feb., pp. 332-40:
 Design of Ordnance Survey post-war maps. Memo. of observations
 by the Council of the C.S.I.

PLANNING, RECONSTRUCTION (Physical and Sociological)

CALIFORNIA ARTS AND ARCHITECTURE, 1944 Dec., pp. 20-2, 42:
 "Comments on planetary reconstruction," by Neutra. Programme of
 world-wide physical reconstrn. Illus. by Neutra projects.

TOWN AND COUNTRY PLANNING

PLAN (Schweiz. Zeitschrift für Landes-, Regional- und Orts-
 planung, Zürich), 1945 Jan.-Feb., pp. 1-19:
 Special No. on non-Swiss planning. Articles on T.P. in Sweden and
 in England; latter survey of t.p. problems and abstract of Barlow,
 Scott and Uthwatt Repts. by P. Trüdinger.

JNL., CHARTERED SURVEYORS' INSTITUTION, Scottish Suppl., 1945
 April, pp. 72-80:
 Land utilisation in Scotland. Paper by T. B. Manson, Chief Land
 Util. Officer, Dept. Agric.

ARCHITECTS' JOURNAL, 1945 Mar. 22, pp. 223-5:
 Irish planning exhibition, Dublin, described and illus.

ARCHITECTS' JOURNAL, 1945 May 10, pp. 340-52:
 Planning progress in Wales. Article by C. Williams Ellis.

PLAN: REVUE SUISSE D'URBANISME (Zürich), 1945 Mar.-April,
 pp. 33-8:
 Town and country planning in Turkey. Article by Dr. E. Egli. Illus.

ARCHITECTS' JOURNAL, 1945 April 26, pp. 323-4:
 Town planning and architecture in W. Africa. Rept. of talk by
 Maxwell Fry, T.P. Adviser to the Resident Minister.

ARCHITECTS' JOURNAL, 1945 Feb. 8, pp. 115-26, xxxvi:
 Town and Country Planning Act, 1944. Abstract and annotation by
 J. B. Wikeley, A.M.Inst.C.E., barrister.

AMERICAN CITY, 1945 April, pp. 65-7:
 The British Town and Country Planning Act. Interview with Minister
 of T. & C.P. by Jacob Crane. Reported as questions and answers.

PLAN: REVUE SUISSE D'URBANISME (Zürich), 1945 Mar.-April,
 pp. 29-32:
 Town planning legislation in France, by E. Virieux. Chiefly reference
 to law of 1941.

JNL., TOWN PLANNING INSTITUTE, 1945 Jan.-Feb., pp. 59-63:
 "Better training for the town planner." Paper by G. Cozen. Spatial
 planning and its affinities.

JNL., INDIAN INSTITUTE OF ARCHITECTS, 1944 Nov., pp. 21-4:
 The architect's sphere in town planning. Paper by Claude Batley [A.].

PLAN: REVUE SUISSE D'URBANISME (Zürich), 1945 Mar.-April,
 pp. 39-41:
 The task and methods of regional planning in the U.S.S.R. Article
 by H. Schmidt. Illus.

ARCHITECTS' JOURNAL, 1945 Mar. 29, pp. 241-4:
 Planning for action by Gordon Stephenson: extensive review of
 Lilienthal's T.V.A.

ARCHITECTS' JOURNAL, 1945 Mar., pp. 205-12:
 Greater London Plan, 1944. Abstract of Abercrombie report.

ARCHL. DESIGN AND CONSTN., 1945 Jan., pp. 16-17;
 JNL., CHARTERED SURVEYORS' INSTITUTION, 1945 Jan., pp. 278-86;

JNL., TOWN PLANNING INSTITUTE, Jan.-Feb., 64-8;
 OFFICIAL ARCHITECT, Jan., 26-7:
 Greater London Plan, 1944: summary.

JNL., TOWN PLANNING INSTITUTE, 1945 Mar.-April, pp. 92-108:
 Merseyside: an outline plan for a region. Paper by F. L. Thompson,
 Town-plg. Consultant for Merseyside Plan. Digest of Report.

BUILDING, 1945 April, pp. 94-5;
 NATIONAL BUILDER, Apr., 196-7;
 OFFL. ARCHIT., Apr., 182-93:

Merseyside Plan, by F. Longstreth Thompson. (BLDG. :) Review by
 Sir Charles Reilly.

(To be concluded)

Accessions to the Library

1944-45-III

Owing to the urgent need to economise space this list now records only new publications, excepting old publications having reference to current demands, e.g. on planning and topography. The others are summarised at end under "Older Works."

For economy of space the following also are now generally excluded from the list: (1) Year-books, lists of members, &c.; (2) extracts from periodicals, and reprints of periodical articles already noted in the REVIEW OF PERIODICALS; (3) Government leaflets of slight or transitory interest. Full particulars are available in the library.

Books presented by the publishers for review marked R.

Books purchased marked P.

*Books of which there is at least one copy in the Loan Library.

ARCHITECTURE

VITRUVIUS E.W. 72 : 013 (45)

De architectura. [Italian.]

I dieci libri dell'architettura di M Vitruvio tradotti et commentati da Monsignor Barbaro &c. Con due tavole, &c. 1556:

Russian trans. Desiat' knig ob arkhiteturie Vitruvii, s kommentariem Daniele Barbaro.

S prilozheniem traktata Dzhuzeppe [Giuseppe] Sal'viati o sposobie tochnogo vycherchivaniia Ioniiskoi voliut [method of designing Ionic volutes].

Perevod [translated] A.I. Venediktova, V. P. Zubova i Petrovskogo [ki]. Vstupitel'naia stat'ia i primechaniiia [introd. and notes] V. P. Zubova. (Klassiki teorii [classics of the theory] arkhitetur.) A. G. Gabricheskogo [ki] [gen. ed.].—Daniele Barbaro. Kommentarii &c.

13¹/₂. xxviii + 478 pp. + pl. + folding pl. Moscow: Izdatel'stvo Vsesoiuznoi Akademii &c. 1938.

Presented by the Academy of Architecture, through M. Victor Vesnin. Original Italian ed. 1556 in Library.

THEORY

EDWARDS (A. TRYSTAN)

72.01

*Architectural style:

*New ed. Style and composition in architecture. An exposition of the canon of number, punctuation and inflection.

7¹/₂. 177 incl. xi pp. text illus. Lond.: Tiranti. 1944 [1945]. 7s. 6d. Presented, R. & P.

1st ed., [1926], in Library.

72.01

*Good and bad manners in architecture:

*New ed. Good & bad &c.

7¹/₂. xv + 176 pp. + pls. text illus. Lond.: Tiranti. 1944 [1945]. 8s. 6d. Presented, R. & P.

1st ed., 1924, in Library.

72.01

ALEXEEV [ALEKSEEV] (S. S.), TEPLOV (B. M.) and SHEVAREV (P. A.)

Tsvetovedenie dlja arkhitektorov. Utverzhdeno GUUZ NKTP SSSR &c.—Colour in architecture. Approved by the Central Administration for Educational Institutions at the People's Commissariat for Heavy Industry &c.

8¹/₂. 159 pp. + pls. text ill. Moscow & Leningrad: Gonti. 1938.

Presented by Mr. K. Voronkov, English Department, VOKS.

HISTORY

FRENKLEY (ALEXANDER)

72.03 (44) (084)

Stones of glory—stones of France. A pictorial sequence of French architectural monuments. Text and photos. by A—F—.

9¹/₂. 8¹/₂. xxxii + (i) pp. + 140 pls. (backed). New York: International Univ. Press. [1944] (\$6.) P.

72.03 (47)

AKADEMIIA ARKHITEKTURY S.S.R.: KABINET TEORII I ISTORII ARKHITEKTURY

Pamiatniki [monuments] Russkoi arkhitetur.

Vols. i & iii only, each with one pt. only. Pokrov na Nerli, xii bek [century]; Ts. Voznesenia v Kolomenskom, xvi bek, part titles. each pfo. 15¹/₂. text and pls. Moscow: Gosudarstvennoe Arkhiteturnoe Izdatel'stvo Akademii &c. 1941, 1941 (in MS.—42).

Presented by the Academy of Architecture, through M. Victor Vesnin.

72.03 (47 L) + 711.4 (47 L)
LENINGRADSKIY GORODSKOI SOVET DEPUTATOV TRUDIASHCHIKH SIA ISPOLNITEL'NYI [EXECUTIVE] KOMITET, name facing title
 Leningrad. (Arkhitekturno-Planirovochnoe Upravlenie [Administration], name facing imprint. A—Planirovochyi Obzor Razvitiia Goroda, name following title-page and on back.) [N. V. Baranov and others, eds. Contributions by S. M. Zemtsov and others.] 134". in case. 403 pp. + pl. Leningrad & Moscow : Gosudarstvennoe Izdatel'stvo "Iskusstvo," 1943. Presented by the Committee.

LEZHAVA (G. I.) and DZHANDIERI (M. I.) 72.03 (47 S)
 Arkhitektura svaneti [architecture of Svaneti]. 12". 75 pp. + pls. [Moscow :] Izdatel'stvo Vsesoiuznoi Akademii Arkhitektury. 1938. Presented by the Academy of Architecture, through M. Victor Vesnin.

CAROLINA ART ASSOCIATION for CHARLESTON CIVIC SERVICES COMMITTEE, Charleston, S. Carolina
 This is Charleston. A survey of the architectural heritage of a unique American city undertaken by the C—C—S—C—. Text by S. G. Stoney. Revised from the reports &c. 9". xiii (xv—2) + 141 pp. incl. maps. text illus. Charleston : the Assn. 1944. Presented by Mr. Anthony Minoprio [F.].

TAUT (BRUNO) 72.03 : 711.433
 Die Stadtkrone. Mit beiträgen von Paul Scheerbart, Erich Baron, Adolf Behne. 94". 141 (143—2) pp. incl. pls., some mounted. text illus. Jena : Diederichs. 1919. Presented by the Town and Country Planning Association.

AKADEMIA ARKHITEKTURY S.S.R. 72.032
 Arkhitektura drevnego mira [ancient world]. V. N. Vladimirova and others, editors. (Vseobshchaya istoriia arkhitektury series. D. E. Arkina and others, gen. eds. i.) 10 1/2" x 8". 203 + (i) pp. + pls. text illus. Moscow : Izdatel'stvo Akademii &c. 1944. Presented by the Academy of Architecture, through M. Victor Vesnin.

DRAWING

BRITISH STANDARDS INSTITUTION 69 (083.74)
 B.S. : shelved separately 72.064.088
 *1192 : Architectural and building drawing office practice. 11" x 8 1/2". 31 pp. 1944. 5s.

ARCHITECTURAL VOCATION, PROFESSIONAL PRACTICE ; LOCAL GOVERNMENT

BROWN (S. T.) Inf. file 72.07 : 352] 62 + 333.08 [72.08 + 711
 The Municipal engineer and surveyor. His relation to architecture and town planning. (From The Surveyor. Apr. 20.) extract. 12 1/2". 1945. Inf. file 72.07 : 325.3 : 354 + 711.07 : 325.3 : 354

COLONIAL OFFICE 9 1/2". 54 pp. [Lond.] 1945. Presented.
 His Majesty's Colonial Service. Information regarding the colonial engineering service together with appointments for architects and town planners. (Colonial service recruitment No. 10.) (Pre-war regulations, oblique-printed.) 72.08 : 34

DAVIES (B. PRICE) 72.08 : 34
 *Building laws, byelaws and regulations.
 *Revised ed. [1st ed. 1938 reprint with interspersed matter on blanks.] 94". 439 + 8 pp. Cardiff : Bldg. Estimator Pubns. [1938], 1944. £1 10s. Presented by the Author [F.], & P. (2).

BUENOS AIRES CITY : MUNICIPALIDAD 72.08 : 34 (82 BA)
 Codigo de la edificación. &c. 11" x 8 1/2". strung binding. (x) + xvii + xvi + 221 pp. [Buenos Aires.] 1944. Presented by Señor C. B. Rocco Perna, joint editor, through Mr. H. G. Hauratt, Buenos Aires representative of the British Council.

Inf. file 72.08 : 347.23

INTER-DEPARTMENTAL COMMITTEE ON RENT CONTROL (MINISTRY OF HEALTH and SCOTLAND : DEPARTMENT OF HEALTH FOR SCOTLAND) Report &c. (Cmd. 6621.) ("Ridley" report.) 94". 63 pp. Lond. : H.M.S.O. 1945. 1s. Presented.

Inf. file 72.083.2 : 72.083.121 [699.895 : 72.025.1]
MINISTRY OF HEALTH 728 : 69.59.2
 Ministry of Works Form of Prime Cost Contract for use of groups. (Circular 64/45.) leaflet, dupl. typescript. 8 1/2" x 7". 1945. R. (2). Enclosing M. of W. Form of p.c. contract.

Inf. file 72.083.2 : 72.083.121 [699.895 : 72.025.1]
MINISTRY OF WORKS 728 : 69.59.2
 M—of W—Form of Prime Cost Contract as agreed with the Ministry of Health, . . . for the repair of war damage to dwellings. (Form MOW/PC/2.) (Feb.) 9 1/2" x 7 1/2". 10 pp. 1945. R. (2).

PALMER (H. S.) 72.03.25
 *The Law of arbitration and awards. Supp. (including the Arbitration Act, 1934), 1935. P. (To be continued)

Correspondence

ARCHITECTURAL EDUCATION

College of Arts and Crafts,
 Margaret Street, Birmingham,
 School of Architecture.

2.8.45.

To the Editor, JOURNAL R.I.B.A.

DEAR SIR,—It has been amusing to read in the current number of the R.I.B.A. JOURNAL a sort of pre-view of the "pronunciamento" prepared by Professor Budden and certain fellow conspirators on the B.O.E., and shortly to be launched on the profession, quite in the best manner of Spain.

Shades of Gropius and a counter revolution. Perhaps luckily in these days of utilitarian furniture so many special "chairs" will continue to remain an order. Meanwhile the return of the whole-time teacher is to be the evil policy and the social values of a University stressed. Paper architecture taught by theorists—Professor Budden lacks realism, he is academic, architecture to him seems hydraheaded, the more physical facts of building not important. Professor Gropius (and followers) may seem to have exaggerated the latter, Professor Budden more than outweighs him, while his comparison with the doctor's training is irrelevant.

Some of us consider that a middle way is possible and would define a school of architecture as a place where the men who will in future write specifications will have a chance of understanding what is specified. By such means helping to close the gap between the architect on the one hand and the craftsman and tradesman on the other, so making their buildings coherent, even achieving a sense of style. Art Schools and Technical Colleges, if reorganised, seem nearer to this ideal than the Junior Universities.

Professor Budden and colleagues seem to prefer the Ivory Tower.

Yours faithfully,
 GEORGE DRYSDALE [F.]

Professor Budden writes in reply:

14.8.45.

The Editor, The JOURNAL, R.I.B.A.

SIR,—Mr. Drysdale has been good enough to let me see in advance a copy of his letter of August 2. I would confine myself to making these observations on it :

Whilst Mr. Drysdale may be entitled to regard me as "academic," lacking in "realism," and the victim of a "hydraheaded" illusion, he is not entitled to attribute to me opinions which I do not hold. In the course of his letter he asserts that I consider "the mere physical facts of building" to be unimportant. This is not so. On the contrary, I believe, as every architect must, that these facts are fundamental and that their systematic exposition and demonstration is one of the primary functions of architectural education. No other conclusion could, I submit, reasonably be drawn from my paper. In it I urged that chairs should be established in the subjects of construction and of building science and that a full-time demonstrator of building processes and craftwork should be appointed to the staff of every Recognised School.

Yours, etc.,
 LIONEL B. BUDDEN.

6 Old Bailey, E.C.4.

28.7.45.

To the Editor, JOURNAL R.I.B.A.

Dear Sir,—Professor Budden in his Paper of 19 June strongly condemned our ancient system of "Articled Pupils and Apprentices," and supported his argument by stating that these pupils were "the least fortunate of the recruits" and that because their parents lacked the means to send them to recognised schools of architecture therefore the young recruits had, *faute de mieux*, to seek an entrance to our profession by way of articled pupilage. Then when the "unfortunate" articled pupil sought to take the Institute's advice in the form of evening classes Professor Budden questioned whether the Institute had not done too much to encourage the number of evening classes available to these "unfortunate."

Professor Budden at the end of his interesting Paper then, I think, took an entirely new line in this ancient controversy of "pupilage versus schools." He seemed to me to infer that as increasing numbers of school-trained architects became experienced private practitioners then, *ipso facto*, these new practitioners would deprecate the "pupilage" system in their own offices to the advantage of the "schools." But Professor Budden gave ample proof in his Paper, if any proof were needed, that the "schools" are producing liberal-minded and most able practitioners and when I see, every day as I do, our articled pupil working alongside his able "schools" trained practitioner I think how fortunate that pupil is to be able to look over and assist his master's work and receive advice and encouragement on his own evening class-work. Furthermore, parents and guardians of pupils may themselves have been pupils and apprentices and although not lacking the means for "schools" may prefer their children to be articled to a firm of architects in order that they can acquire an early association with the building craftsmen and office routine.

I conclude, therefore, that although the rise to power of the "schools" system of architectural education has been and will continue to be of immense advantage to the profession, yet the ancient "pupilage" system may safely be permitted in a large city where a satisfactory technical library and evening classes are available. As a short term view I suggest that every form of good architectural education will now be required in order to cope with the re-training of those returning to their profession and for numbers of young recruits attracted by the prospect of unlimited new building work.

Yours faithfully,

NORMAN O. SEARLE [A.]

ARCHITECTS AND ARCHITECTURAL STUDENTS AND R.E. COMMISSIONS

The War Office,
Hobart House,
London, S.E.1.

SIR,

Nomination of Members and Students of Professional Institutions for Service in the Royal Engineers.

I am directed to inform you that there is at present a shortage of officers and potential officers in the Corps of Royal Engineers, in particular the following branches will be exceptionally hard hit by the demobilisation of Age and Service Groups:—

1. *Field and Lines of Communications Units.* Officers with knowledge and experience of Electrical and Mechanical Engineering, Mechanical Equipment and Civil Engineering, Architects, Surveyors, Builders, Contractors, etc., are required.
2. *Transportation.* Including those with experience in Railway Construction or track maintenance, locomotive operating Mechanical Workshops and Marine Engineering.
3. *Movement Control.* Including those with knowledge of railway transport and loading and embarking of personnel, i.e., those with experience of tourist agencies, such as "Cooks Tours," etc.

Personnel with limited knowledge of the foregoing may attend courses after commissioning to bring them up to the required standard.

It will be greatly appreciated if you have members or students of your Institution, who are not already serving, desirous of consideration for commissions in the Royal Engineers, either through the Army Officers' Emergency Reserve, or after O.C.T.U. training through the ranks, that they may submit their names and particulars through your Institution to:—The Under-Secretary of State, The War Office, A.G.7 (L), Hobart House, Grosvenor Place, S.W.1.

On completion of the necessary application forms, suitable candidates under 25 years of age may be offered the opportunity

of Special Enlistment as a Pioneer Student R.E. (see "Note" attached) and those over 25 years of age would have an interview arranged for them with a War Office Selection Board, in order to ascertain under which category they could most suitably be employed. Qualifications, experience and age determine whether a candidate may be recommended for one of the following:—

1. An Immediate Emergency Commission through the Army Officers Emergency Reserve.
2. Direct entry into an R.E. Officer Cadet Training Unit, after Primary Training and Pre O.C.T.U. Training.
3. Special enlistment as a Pioneer Student R.E.

However, should applicants prefer to discuss their personal queries with this branch regarding their entry into the Corps of Royal Engineers, we shall be pleased to interview them at Room 311, Hobart House. Applicants are requested to write in for an appointment giving a few days' notice.

Any assistance you may be able to give us in this matter will be greatly appreciated.

I am, Sir,

Your obedient Servant,
G. CRICHTON MITCHELL,

for Director of Organisation.

EXPLANATORY NOTE ON SPECIAL ENLISTMENT OF "PIONEER STUDENTS" R.E.

Introduction

At present, all youths called up to the Army by the Ministry of Labour and National Service are posted to a Primary Training Wing of the General Service Corps, where they are given six weeks of elementary training that is common to all Arms of the Service. During this period of Primary Training they are given tests by Military Testing Officers and as a result of observations recommendations are made for their future employment in the Army, bearing in mind, of course, any experience they may have had in civil life. It should be remembered here, that it is not always possible for a man to be given employment in the Army similar to that which he had in civil life and that it is sometimes necessary to train him for work in the Army for which there is a shortage of skilled personnel.

There is, however, a scheme whereby selected volunteers likely to make officers after suitable training (these are known as "Pioneer Students") may be enlisted for direct posting to the Corps of Royal Engineers on completion of their Primary Training, the object being to provide the Corps with an intake of young men of potential officer standard who had embarked on an engineering or similar career prior to being called up, and who should therefore find little difficulty in assimilating R.E. training.

The "Pioneer Student"

On completion of Primary Training, the Pioneer Student proceeds to a Training Battalion R.E., where he undergoes three months' Corps Training in the duties which the trained Sapper is required to carry out, viz., the construction of Field Defences, Demolitions, Water Supply, Bridging, etc. He receives exactly the same training and carries out the same duties as all other Sappers, and no distinction is made between volunteers and normal recruits who have been allocated to the Royal Engineers on the recommendation of the Military Testing Officers.

Officer Cadet Training

Selection for training at the R.E. O.C.T.U. depends entirely on receiving a satisfactory recommendation by the Officer Commanding the Training Battalion, R.E., and a successful interview by a War Office Selection Board on completion of Corps Training.

In the event of a candidate failing to obtain a satisfactory recommendation from his Commanding Officer, or if he is unsuccessful when undergoing interview with the War Office Selection Board (e.g. for reasons of immaturity), he will be retained for service in the ranks. He may, however, after a further period of service amounting to not less than three months, submit a further application for re-interview and reconsideration of his case.

It is emphasised that technical qualifications alone are not sufficient to justify Commissioned Rank, as ability to lead others, initiative, zeal and efficiency, have also to be taken into consideration. (At present the duration of Pre O.C.T.U. and O.C.T.U. training at the R.E. O.C.T.U. is approximately 38 weeks.)

Conditions to be Fulfilled in order to Qualify for Special Enlistment

- (i) The minimum age for special enlistment as Pioneer Student is 17½ years.

- (ii) No maximum age limit is laid down, but volunteers should preferably be under 25 years of age, and of Army Medical Grading A1 to A3 inclusive.
- (iii) Candidates must be of School Certificate Standard with a credit in Mathematics, and must be able to produce evidence that they intended to enter the Engineering (or Allied) profession. (Either a Full-time Course at a University or Technical College in which the Student is reading for a Degree of Diploma in the Profession, or alternatively, apprenticeship to a Chartered Engineer, Architect, Surveyor, etc., will be regarded as satisfactory in the latter instance.)
- (iv) If employed, the Employer's consent to release is necessary.
- (v) Enlistment is for the duration of the present emergency and not for a fixed period as in the case of a Regular Engagement.

Application

Application is made in the first instance to :—

The Under-Secretary of State for War,
The War Office, A.G. 7 (L),
Hobart House,

Grosvenor Place, London, S.W.1,

where the necessary application form will be supplied on request.

Note (1) Owing to the number of candidates, it is regretted that personal interviews cannot be granted at the War Office with regard to individual applications.

Note (2) In the event of a candidate receiving a Call-up notice (Form N.S.12A) under the National Service Acts at any time whilst his application is under consideration by the War Office, it will be necessary for him to report as instructed, but he should notify the War Office A.G.7 (L) IMMEDIATELY of the unit to which he has to report and on what date. On receipt of such information, every endeavour will be made to allocate the candidate to the Royal Engineers on completion of Primary Training, although this cannot be guaranteed.

Date :—

Obituary

HENRY V. ASHLEY [F.]

We regret to record the death, at the age of 72, of Mr. H. V. Ashley [F.], Architect with his partner Mr. Winton Newman of the Masonic Peace Memorial, London. Mr. Ashley took a prominent part in R.I.B.A. affairs and served on the Council and many Institute committees. He was vice-president, 1929-31. We hope to publish a full memoir in the next issue of the JOURNAL.

MARY NOEL ROBINSON, B.A. [A.]

F. Austin Child [A.] writes :—

It is a privilege for me to record this brief appreciation of Mary Noel Robinson, whose untimely death at the early age of 35 cut short a career which gave promise of great success. Wife of Lieut.-Colonel R. H. E. Robinson, Royal Corps of Signals, and only daughter of Mr. and Mrs. Thomas Grieve, of Monkseaton, Northumberland, she was educated in the University of Durham, where she graduated B.A., with 1st Class Honours in Architecture. In 1936 she went to London as architectural assistant, and subsequently as partner, with the firm of Adie, Button & Partners. Ill-health later compelled her to retire from professional life and to endure years of suffering and enforced inactivity.

I know her best as a student in the School of Architecture at Armstrong College. She possessed sound scholarship and an amazing capacity for work, both of which, fanned by enthusiasm, soon placed her in the leading ranks of the School, where positions were keenly contested by the students. And in this atmosphere of youthful endeavour she revelled and lived, for Mrs. Robinson was not one to succumb easily, the spirit of adventure and zest for life were too strongly developed in her nature. To these characteristics she brought the twin qualities of fortitude and cheerful courage in her attitude towards difficulties, but at no time did she employ them with greater effect than during the last years of her illness.

Notes

THE ASHPITEL PRIZE, 1944

The Ashpitel Prize, which is a Prize of books to the value of £20 awarded to the candidate who, taking the Final Examination to qualify as an Associate, shall most highly distinguish himself among the candidates in the Final Examinations of the year, has been awarded to Mr. Kenneth W. Bland (Student R.I.B.A.).

NOTES FROM THE MINUTES OF THE COUNCIL 3 JULY, 1945

British Standard Specifications

On the recommendation of the Co-ordinating Committee of the Standard Specifications Committee, the Council have informed the British Standards Institution that representatives of the R.I.B.A. on Committees of the B.S.I. are appointed solely to assist in the preparation of British standards and are not authorised to represent the R.I.B.A. on matters relating to their use and special application and that questions affecting the policy of the R.I.B.A. should not be addressed to individual representatives but to the R.I.B.A.

Bye-laws of the Royal Incorporation of Architects in Scotland
The Council formally approved certain amendments to the Bye-laws of the Royal Incorporation of Architects in Scotland.

Prime Cost Contract for Use in the Repair of War Damage

The Council considered a draft Form of Prime Cost Contract for Use in the Repair of War Damage which had been prepared by the Joint Contracts Tribunal and in order to avoid undue delay in publication it was agreed that the Practice Committee be authorised to deal with the matter on behalf of the Executive Committee and the Council.

Electrical Signs on Buildings

The Town and Country Planning Committee have been asked to consider a suggestion received from the Electrical Signs Manufacturers' Association on the subject of improving the standard of electrical signs for post-war use and the need for designing modern buildings to incorporate neon and other lighting fittings instead of leaving them to be fixed haphazard after the building has been erected.

Practice Lectures

The Public Relations Committee and Officers of the Board of Architectural Education have been asked to collaborate in the preparation of a detailed programme of lectures intended to help the younger members of the profession in the sphere of professional practice.

Assessors' Fees in Competitions for the Development of Housing Estates

The Council approved a suggested Scale of Fees for the guidance of Assessors appointed in connection with competitions for the development of housing estates. Copies of the suggested Scale will be available for Assessors who are appointed for this type of competition.

Council for Education in Appreciation of Physical Environment

The Council have made a grant of £10 to the C.E.A.P.E.

Map Symbols for Social Surveys

On the recommendation of the Architectural Science Board, the Council decided to ask the British Standards Institution to consider the preparation of a British standard for map symbols for social surveys.

R.I.B.A. Houston Maintenance Scholarship

A scholarship of £100 per annum was awarded to Mr. H. W. D. Burgess, of Treforest, Glamorgan.

The Ashpitel Prize 1944

The Ashpitel Prize, 1944, was awarded to Mr. Kenneth W. Bland, Student, who passed the Final Examination in December 1944.

Appointments

R.I.B.A. Codes Committee on External Walling, Internal Walls and Partitions.

Mr. R. S. Nickson [F.]

Meeting with the Technical Consultative Group of the Codes of Practice Committee, Mr. P. V. Burnett [F.]

Building Industries National Council. Mr. Darcy Braddell [F.] and Mr. Henry Braddock [A.], in place of Mr. J. L. Denman and Mr. Sydney Tatchell.

Women's Advisory Housing Council. Mrs. Howard Robertson [A.]

Obituary

The Secretary reported with regret the death of the following members and Students :—

Arthur Reutlinger Gough [F.]

John Smith Murdoch, C.M.G. [F.]

Samuel Denman [Retd. F.]

Thomas Townend [Retd. F.]

Guy Stewart Richardson [A.], Killed on active service.

Henry Francis Wharf [A.]

Charles William Geddes [L.], Killed on active service.

Charles William Miller [L.]

Ernest Samuel Roberts [L.]

William Fenn [Retd. L.]

Smart Walker [Retd. L.]

Fred Clark [Student]. Killed on active service.

Derrick William Stantall [Student]. Killed on active service.

William Robertson Woodcock [Student]. Killed on active service.

Messages of sympathy have been conveyed to their relatives.

Membership

The following members were elected :—
As Fellow : 1. As Associates : 3.

Election October 1945

Applications for election were approved as follows :—
As Fellows : 3. As Associates : 6. As Licentiates : 8.

Election November 1945

One application for election as Fellow and one application for election as Associate from overseas candidates were also approved.

Reinstatements

The following ex-members were reinstated :—
As Associate : Charles McVeagh Crichton.
As Licentiate : Sidney Charles Tout.

Resignations

The following resignation was accepted with regret :—
Horace Field [Retd. F.]

Application for Transfer to Retired Members' Class under Bye-law 15

The following application was approved :—
As Retired Fellow : Robert Bennett.

Membership Lists

ELECTION : JULY, 1945

The following candidates for membership were elected in July 1945.

AS FELLOW (1)

LIPSON : SAMUEL [A. 1926], Sydney, New South Wales.
AS ASSOCIATES (3)

FINLAY : MISS MARGARET KEITH, Hobart, Tasmania.

LAURIE : WILLIAM RAE, Sydney, New South Wales.

MEYERSON : ERIC, B.Arch. (Rand), Johannesburg, South Africa.

ELECTION : 16 OCTOBER, 1945

An election of candidates for membership will take place on 16 October, 1945. The names and addresses of the candidates, with the names of their proposers, found by the Council to be eligible and qualified in accordance with the Charter and Bye-laws are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary, R.I.B.A., not later than Saturday, 11 August 1945.

The names following the applicant's address are those of his proposers.
2nd LIST

AS FELLOWS (3)

DAVIES : ELIDIR LESLIE WISH [A. 1932], formerly of 26 Langham Street, W.1; 66 Park Place, Cardiff. Prof. A. E. Richardson, Prof. H. O. Corfato and Trystan Edwards.

OSMAN : LOUIS, B.A. (Arch.) [A. 1937], "Hillands," Edenbridge, Kent. Prof. A. E. Richardson, Prof. H. O. Corfato and Anthony Minoprio.

And the following Licentiate who has passed the qualifying Examination :—

COX : RICHARD GEORGE, Messrs. Clifford Tee & Gale, 39 Bennetts Hill, Birmingham, 2; 735 Walsall Road, Birmingham, 22a. E. L. Gale, T. P. Bennett and C. F. Martin.

AS ASSOCIATES (6)

The name of a school or schools after a candidate's name indicates the passing of a recognised course.

COUTON : THOMAS (Univ. of Liverpool), Mere Brow, Tarleton, Nr. Preston, Lancs. Prof. L. B. Budden, J. E. Marshall and Donald Brooke.

DAVIES : RICHARD HORROR (Arch. Assoc.), "Threeways," Kingswood, Surrey. George Fairweather, Howard Robertson and G. A. Jellicoe.

JONES : KENNETH ALBAN (Leeds School of Arch.), Linton Old Granary, Nr. Wetherby, Yorks. N. R. Paxton, W. A. Jones and G. H. Foggett.

LEWIS : JOHN NEWELL (The Poly., Regent Street, London), 16 Hill House Road, Streatham, S.W.16. E. C. Scherrer, L. A. Chackett and J. K. Hicks.

STEWART : DUNCAN MCKENZIE, Dip. Arch (Edin.) (Edin. Coll. of Art), c/o Leslie Grahame-Thomson, Esq., 6 Ainslie Place, Edinburgh. Leslie Grahame-Thomson, J. R. McKay and R. S. Reid.

VICKERY : MAXWELL EDWARD (Arch. Assoc.), 50 Holland Street, W.8. T. S. Vickery, L. S. Sullivan and Col. F. S. Hammond.

AS LICENTIATES (8)

CAMPBELL : IAN ALEXANDER (Captain, R.E.), formerly Greenock Burgh Architectural Department; 4 Miller Road, Ayr, Scotland. Applying for nomination by the Council under Bye-law 3 (d).

LADES : HUGH REGINALD HARRY, c/o Messrs. Cow & Gate, Ltd., North Street, Guildford; Quarry Cottage, Shalford Road, Guildford. L. R. Hiscock, G. M. Aylwin and R. S. Dixon.

FELDMAN : ALEC, 26 Ventnor Villas, Hove, 3, Sussex. W. H. Overton, C. L. Clayton and Alwyn Underdown.

FORSYTH : ANDREW ROSS, D.C.R.E., Tyne, 10 Westfield Drive, Gosforth; 20 Linden Road, Gosforth, Newcastle-upon-Tyne. Lt.-Col. A. K. Tasker, F. W. Harvey and W. J. Taylor.

HARTINGTON : GEOFFREY, c/o Messrs. Cruickshank & Seward, 16 Princess Street, Manchester, 1; 72 Leigh Road, Hale, Cheshire. H. T. Seward, Francis Jones and W. C. Young.

OXLAND : ARTHUR GEORGE, 8 East Street, South Molton, Devon; "Bucina Vista," Poltimore Road, South Molton. A. J. A. Illingworth, and applying for nomination by the Council under Bye-law 3 (d).

REID : THOMAS WHYTOCK, 9 Renwick Terrace, Hawick, Roxburghshire. J. D. Mills, P. H. Thoms and C. G. Soutar.

SUTTON : WILLIAM FREDERICK JOHN, c/o 30 Cadogan Square, S.W.1; 38 Pine Avenue, West Wickham, Kent. John Bennett and the President and Hon. Secretary of the Devon and Cornwall Architectural Society (Exeter Branch) under Bye-law 3 (a).

Notices

THE USE OF TITLES BY MEMBERS OF THE ROYAL INSTITUTE

In view of the passing of the Architects Registration Act 1938, members whose names are on the Statutory Register are advised to make use simply of the title "Chartered Architect" after the R.I.B.A. affix. The description "Registered Architect" is no longer necessary.

ASSOCIATES AND THE FELLOWSHIP

Associates who are eligible and desirous of transferring to the Fellowship are reminded that if they wish to take advantage of the next available election they should send the necessary nomination forms to the Secretary R.I.B.A. as soon as possible.

"A.B.S."

HOUSE-PURCHASE SCHEME

REVISED TERMS

Advances : Up to 80 per cent. of a reasonable valuation.

Interest : 4½ per cent. gross.

Repayment : By means of an Endowment Assurance term not exceeding 25 years.

No Survey or legal fees normally charged to the Borrower.

Particulars from : The Secretary, A.B.S. Insurance Department 66 Portland Place, London, W.1. (Tel. WELbeck 5721).

Members' Column

APPOINTMENTS

MR. D. WINSTON ALDRIDGE [F.], A.M.T.P.I., has been appointed Head of the Department of Architecture and Building, the South-West Essex Technical College and School of Art, Walthamstow. He will take up his new duties on 1 September.

MR. B. BANNATYNE LEWIS [F.] has been appointed Architect to the Great Western Railway in succession to Mr. P. E. Culverhouse [F.], who has retired.

MR. CECIL J. MITCHELL [F.], late Government Architect, Uganda, and recently with the Ministry of Town and Country Planning Regional Office, Nottingham, has taken up an appointment as Architect with the Public Works Department, Nairobi, Kenya, and expects to be leaving England shortly.

MR. R. FRASER REEKIE, A.M.T.P.I. [F.] has recently been appointed Chief Assistant Architect, West Indies Office of Messrs. W. H. Watkins and Partners [F/F.]. Mrs. Lorna M. Reekie [A.] will shortly join her husband. Their address from September will be : 3 Springbank Avenue, Cascade, Port of Spain, Trinidad, B.W.I.

MR. S. A. G. COOK [A.] has been appointed Assistant Architect to the Bourneville Village Trust to take charge under the Chief Architect of the Architectural Department.

MR. JOHN S. FOWLER [A.] has terminated his appointment with the Southampton Borough Council and has commenced private practice at 41 Portland Terrace, Southampton, as Architect for post-war housing programme to be carried out by the Romsey and Stockbridge R.D.C. He wishes to receive trade catalogues, etc., from interested firms on housing and other work.

MR. F. G. SOUTHGATE [A.] has been appointed Borough Architect of Walthamstow and would like to receive Trade catalogues at Borough Architect's Office, Town Hall, Walthamstow, E.17.

The services of an Architect are required for work in connection with a Protestant Mission in the Gold Coast, West Africa.

The building programme is mainly in connection with education arising from the application of the Colonial Developments and Welfare Fund. It is probable that the scheme will extend over a period of five years. Salary up to £1,000 plus passage out and return and bungalow accommodation on the Gold Coast.

Applications to be made to Messrs. Mauger & May, Architects and Planning Consultants, Parkway Chambers, Welwyn Garden City, before 31 August 1945.

PRACTICES AND PARTNERSHIPS

PROFESSOR SIR PATRICK ABERCROMBIE [F.] has opened an office in conjunction with Mr. Richard Nickson [A.] at 33 Welbeck Street, London, W.1 (Telephone WELbeck 1681-2.) All correspondence in connection with his private practice should now be sent to this address.

MR. EDWARD ARMSTRONG [F.] has now returned to his pre-war office at 19 Manchester Square, London, W.5. (Tel. Welbeck 3820).

MR. JOHN GREY [F.] has now resumed private practice at 68 Abingdon Villas, Kensington, W.8. (Wes. 7977).

MR. J. H. MARKHAM [F.], who has recently retired from the Ministry of Works, has resumed private practice at 82 Victoria Street, S.W.1. Telephone : VICtoria 7651.

MR. WINTON NEWMAN [F.] (H. V. Ashley & Winton Newman) is returning to No. 3 Verulam Buildings, Gray's Inn, London, W.C.1 (Holborn 2804/5).

MR. E. T. WATKIN [F.], of Burslem, Stoke-on-Trent, has taken into partnership Mr. R. I. Willis, M.A. [A.]. The firm will practice under the name of Watkin & Willis, National Provincial Bank Chambers, Burslem, Stoke-on-Trent.

MR. G. BERKELEY WILLS [F.] has now resigned his appointment of Deputy Technical Adviser to the War Damage Commission in order to resume his practice which he will at present be carrying on from his country office, No. 41 High Street, Marlow, Bucks (his London office having been "blitzed" in 1942), where he will be pleased to receive trade catalogues, etc.

MR. TRENWITH WILLS [F.], formerly of the firm of Gerald Wellesley and Trenwith Wills [F./F.], Abbey House, Baker Street, N.W.1, has re-opened a London office at 24, Yeoman's Row, Brompton Road, S.W.3 (Ken 8581), where he will resume practice.

CAPTAIN T. BURRINGTON, R.E. [A.] has resumed practice at "Southlands," Upper Wanborough, Nr. Swindon, Wilts. (Wanborough 206), and will be pleased to receive trade catalogues, etc.

MR. SELBY J. CLEWER [A.] would be glad to receive catalogues from manufacturers of building materials, etc., for export.—Address c/o The Ministry of Education, Addis Ababa, Ethiopia, E. Africa.

MR. PHILIP GINNELL [A.] has changed his office to 31 Pearse Street, Mullingar.

MR. WM. L. LOWE [A.], incorporating the firm of Messrs. Gray, Evans & Crossley, architects, has moved his offices to Nos. 1/3 Eberle Street, Dale Street, Liverpool (Telephones : Central 4411 and 3000), and he will be pleased to receive catalogues and descriptive literature relating to new materials.

MR. DOUGLAS D. MOORE [A.] is now engaged on post-war housing work and would be glad to receive technical information addressed c/o Borough Surveyor's Department, Town Hall, Bacup, Lancashire.

MR. BRIAN PEARCE, A.A.Dip (Hons.) [A.] is now conducting his practice from 13 Dover Street, London, W.1 (Telephone : Regent 4914/5).

MESSRS. FRANK TRANMER (D. P. Tranmer [A.], Eric Brown [A.] and H. Bailey [A.]) have resumed practice at 3 Victoria Avenue, Harrogate, and will be pleased to receive trade catalogues, etc.

MR. CLIFFORD WORLINGTON [A.] has commenced practice at the China Dog Studio, East Row, Rochester, and will be pleased to receive trade catalogues.

MR. WALTER LEWIS [L.] has opened offices in Venice Chambers, 61 Lord Street, Liverpool, 2, and would be pleased to receive trade catalogues.

MR. JAMES WALLACE [L.] has resumed practice at 5 High Street, Rothesay Bute (telephone No. Rothesay 548), where he will be pleased to receive trade catalogues, etc.

PARTNERSHIPS WANTED OR FOR DISPOSAL

MEMBER [F.] having been appointed by local authorities for permanent municipal housing, would consider association with another architect similarly engaged, with a view to partnership or working office arrangements. London and South-Eastern Counties only.—Apply Box 114, c/o The Secretary, R.I.B.A.

ARMY OFFICER [A.] requires partnership with established London practice or with newer practice which has good prospects. Capital available according to circumstances.—Apply Box 126, c/o The Secretary, R.I.B.A.

ASSOCIATE, aged 32 years, proposing to practise in South of England, wishes to contact an architect desiring a partner.—Reply Box No. 122, c/o Secretary, R.I.B.A.

ASSOCIATE (45), fully experienced, wishes to enter into partnership with live practice, or would consider senior or managing assistantship with a view to partnership or purchase. Capital available. Southern, South-Western or North-Western Counties preferred.—Apply Box No. 120, c/o The Secretary R.I.B.A.

OPPORTUNITY to take over long-established practice and completely equipped offices in developing North of England city.—Write Box No. 128, c/o The Secretary, R.I.B.A.

BUSY CITY PRACTICE for sale in West of England. Genuine reason. Excellent opportunity.—Apply Box No. 121, c/o The Secretary R.I.B.A.

MEMBERS RELEASED FROM THE SERVICES, ETC.

The following members have notified the R.I.B.A. that they have been released from the Services and are resuming practice and would like to receive trade catalogues, information sheets and other data, etc.:

LEUT.-COLONEL WALLACE J. GREGORY, R.E. [F.], will resume practice in Westminster in September. In the meantime he is practising from 5 All Saints Passage, Cambridge (Tel. Cambridge 54714).

MR. C. J. EPRIL [F.], ex-Royal Air Force, 55 Pall Mall, London, S.W.1.

LEUT.-COLONEL ARTHUR E. HENSON, R.E. [F.] (Sir John Brown and A. E. Henson), 117 Sloane Street, London, S.W.1, and 83 St. Giles' Street, Northampton.

MR. J. A. H. MOTTRAM, Captain, R.E. [A.], 13 India Street, Edinburgh, with Mr. A. H. Mottram [F.], 14 Frederick Street, Edinburgh.

MR. G. F. LONG [L.] 2 Dorchester Court, Muswell Hill, N.10.

MR. WALTER H. CLARK [L.] (late Major, R.E.), 2 Verulam Buildings (2nd floor), Grays Inn, W.C.1 (Telephone : Chancery 8029).

MR. P. S. FERGUSON, B.Sc.(Eng.), Captain, R.E. (S.), 30 Royal Circus, Edinburgh, with Mr. A. H. Mottram [F.], 14 Frederick Street, Edinburgh.

ACCOMMODATION REQUIRED

OFFICES with good address in Central London area required by architect : two rooms and small store.—Apply Box No. 124, c/o The Secretary, R.I.B.A.

TWO ASSOCIATES, commencing practice, require room 18 ft. by 12 ft. approx. W.1 or N.W.1 district.—Reply Box No. 119, c/o The Secretary, R.I.B.A.

MEMBER requires self-contained office accommodation in West End of London, area not less than 600 square feet.—Apply Box No. 118, c/o The Secretary, R.I.B.A.

MEMBER just released from Forces urgently requires one or two rooms with use of telephone in London.—Apply Box No. 125, c/o The Secretary, R.I.B.A.

WANTED

F.R.I.B.A. is anxious to obtain a copy of Mr. John Gloag's book, *Men and Buildings*.—Apply Box No. 127, c/o The Secretary, R.I.B.A.

FOR SALE

MEMBER wishes to dispose of solid mahogany office bookcase ; oak plan chest ; deal plan chest ; antiquarian drawing boards and tee squares ; double Elephant and Imperial drawing boards. List and prices on request.—Apply Box No. 117, c/o The Secretary, R.I.B.A.

ARCHITECT'S WIDOW wishes to dispose of architectural instruments as follows :

5 Tee Squares (Double Elephant 10s. 6d., Half Imperial 3s. 6d., 3 Imperial, 7s. 6d., 7s. 6d., 5s.) ; 1 Straight-Edge, 4 ft. 6 in., 3s. ; Three-Foot Rod 4s. 6d. ; Plumb Line 7s. 6d. ; Proportional Dividers 15s. ; Set Squares, various sizes, including 18 in. 9s. 45, and 20 in. 6s. 30, 5s. ; Miscellaneous Scales 1s. 6d. to 6s. ; and other oddments. Can be seen, c/o A.B.S., at the R.I.B.A.

WIDOW of Fellow wishes to sell the following instruments :—2 T squares, 4 tapes, 2 spirit levels (in case), 1 large compass (in case), 2 small compasses, 1 case compass, 1 bundle of curves, box containing drawing scales, 8 ivory rulers, 2 rulers, 1 large protractor, 7 assorted set squares.—Replies to Box No. 106, c/o Secretary, R.I.B.A.

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